ABSTRACTS OF PAPERS

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"Data Innovation: Key to a Better Nation"

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Demystifying the Household Final Consumption Expenditure (HFCE) in the Philippine System of National Accounts (PSNA)

By

Mark C. Pascasio, Arline D. Dimafelix, Jumille Anne F. Gamis, Lea T. Chavez and Joermine Elaine P. Robredo

Abstract

The Household Final Consumption Expenditure (HFCE) comprises around 70 percent of the Gross Domestic Product (GDP) of the Philippines in 2018. This consists of expenditure incurred by resident households on final consumption of goods and services which also includes: barter transactions; goods and services in kind; and goods and services produced and consumed by the same household. During the same year, HFCE has the highest contribution to GDP growth among the expenditure items. In many occasions, the HFCE is also compared with the Family Income and Expenditure Survey (FIES) conducted by the Philippine Statistics Authority (PSA) every three years. The major conceptual and operational differences between the HFCE and FIES would also be discussed in the paper.

With the current efforts on the overall revision and rebasing activity by PSA, this paper presents the improvements on the methodology in capturing the HFCE in the Philippine economy. The paper also aims to compare the conceptual and operational peculiarities of this expenditure item with FIES. Lastly, some estimation results and challenges would also be presented.

Achieving Exhaustiveness in the Measurement of the Non-observed Economy in the Philippines

By

Dean Joseph A. Villanueva and Faith Hyacinth M. Balisacan

Abstract

This paper provides a conceptual framework and empirical strategy in operationalising the measurement of the Non-observed economy (NOE) in the National Accounts of the Philippines (NAP). Achieving exhaustiveness in capturing the transactions that may not be covered in the basic data is crucial in the compilation of NAP. This framework and strategy patch the gaps in balancing the production side and the expenditure side of the accounts.

The primary basis for crafting the conceptual framework and empirical strategy is the Organisation for Economic Co-Operation and Development's (OECD) Handbook on Measuring the Non-Observed Economy. The handbook frames a systematic strategy in identifying the activities that are missing from the basic data for the compilation of the national accounts.

Using the handbook and other literatures in the measurement of the NOE as references, this paper integrates the definitions, scope, limitations, and pieces of information in the industry-based surveys, labor survey and the household expenditure survey.

Unmasking the Middle Class in the Philippines: Aspirations, Lifestyles and Prospects for Sustainable Consumption

By

Jose Ramon G. Albert, Ph.D.

Abstract

The middle-class is crucial in a country's development. Developing countries such as the Philippines that have reduced income poverty are concomitantly having a growth in their middle-income-class, which we define in terms of thresholds pertaining to the official poverty lines. This case study of the Philippine middle-class looks into its characteristics, consumption and expenditure dynamics, as well as drivers of its carbon consumption patterns, particularly transport and energy use. The study also investigates the attributes (household composition and education level, dwelling characteristics), activities (including jobs and engagement in non-farm activities), and resources (land, livestock, and assets) of the middle-class that enable them to make their lifestyle choices. Findings from this report are based on analysis of secondary data from the Family Income and Expenditure Survey over 2006-2015, supplemented by an examination of primary data collected from focus group discussions and a household survey of the middle-class in Metro Manila, conducted by the German Development Institute/ Deutsches Institut für Entwicklungspolitik. Findings suggest that middle-class families tend to reside in urban areas (especially Metro Manila and neighbouring regions) and own their dwellings. Most members of middle-class families who are economically active have attained more than secondary education and are typically engaged in non-vulnerable salaried employment. Many, if not most, middle-class families have accumulated various assets, such as televisions, cell phones, refrigerators, washing machines, radios, desktops/laptops. Some of the middle-class families have also invested in other assets such as motorbike, stereo, aircon, oven, and cars. The study finds evidence of the extent of carbon consumption of the middle-class, as well as how this, as well as reported savings behavior, and familiarity with recycling is being influenced by wealth, and environmental consciousness. Finally, the findings suggest that there is wide scope for integrating behavior insights for encouraging the Philippine middle-class to take an active role in decoupling economic development from resource depletion and pollution.

What Determines Financial Inclusion in the Philippines? Evidence from a National Baseline Survey

By

Gilberto M. Llanto, Ph.D. and Maureen Ane D. Rosellon

Abstract

This paper contributes to the literature on financial inclusion in the Philippines by examining three key financial services, namely, savings, credit, and insurance, and identifying individual socioeconomic characteristics that are associated with access to these financial services. Financial inclusion is also analyzed in the context of four geographical areas in the Philippines--National Capital Region, Balanced Luzon, Visayas, and Mindanao – which provides more insights and a better understanding of financial inclusion. Using data collected from the national baseline survey of financial inclusion, estimation results indicate that sociodemographic characteristics such as age, sex, civil status, education, employment, and income are associated significantly with accessing various financial products and services. Findings also suggest similarities in the socioeconomic profiles of users and nonusers of financial services in the four geographic areas, while differences appear to be related to the presence of banks and other formal financial institutions. These results provide useful inputs to policy and strategies for attaining inclusive finance**.**

Beyond the Classroom: Evidence on New Directions in Financial Education

By

Nassreena Sampaco-Baddiri

(Innovations for Poverty Action)

Abstract

Financial education is widely used as a tool to help people navigate the financial system and make better financial choices. These are built on the assumption that education will lead to knowledge, which will lead to better choices and improved financial health. Recent evidence suggests that assumption is flawed, but also shows promise for some new, alternative approaches to financial education.

A robust body of evidence shows that on average conventional approaches to financial education have not been successful in either imparting lasting knowledge or in changing people's financial behavior. While these findings may seem discouraging at first, there are other approaches to financial education. New methods have been tested in recent years that yield positive results.

To promote better decision-making and ultimately improve financial well-being, purveyors of financial education should use existing evidence to inform program design, and ensure programs aim to go beyond improving knowledge to eliciting behavior change. There is no one size fits all financial education curriculum given varying context and capabilities.

Technological innovations are promising, such as mobile phone apps, without a high price tag. But these need further work and testing. We explore the emerging evidence in these new approaches and consider where we go from here.

Focus Group Discussion on the Structural Characteristics, Production and Trading Practices of Commercial Fishing Operations

By

Rosalinda C. Apura, DM, Melchor B. Bautista, Presa P. Villarina, Lovervelle C. Olaco, Jerilyn B. Matutod, Christine F. Pegarit and Saracelyn S. Segales

Abstract

Fishery industry is one of the major sectors that contributed to Caraga's economy. The data from the Philippine Statistics Authority (PSA) show that marine fish production in the region is declining through the years. This study aims to determine the structural characteristics, fish production and trading practices of fish catch of commercial fishing operations in Caraga and to determine the understanding of fishing operators/fishermen on the concepts of fishing activity and operations. The results show the different factors that affect the overall commercial fishing operation in Caraga. The study will serve as guide in formulating questions and constructing possible categories for 2022 Census of Agriculture and Fisheries (CAF) questionnaire and provide an evidence-based information for policymakers and stakeholders in coming up with interventions and programs for the improvement of fishing operations in Caraga.

CAR Assets Accounts for Timber Resources

By

Aldrin Federico R. Bahit, Jr. and Jeanniel I. Barcayan

Abstract

This study presents the state of the forestland of the Cordillera Administrative Region (CAR) by presenting the physical and monetary asset accounts of timber resources covering the period 1999-2018. The compilation of timber accounts for the region followed the United Nations System of Environmental-Economic Accounting (SEEA) 2012 Central Framework.

The physical asset account is based on the 2010 and 2015 Land Cover of CAR that classifies forestlands as closed forest, open forest and plantation forest. The physical asset accounts present the area of the forests in hectares and the volume of timber resources in terms of cubic meters. For monetary asset accounts, the stumpage value of standing timber was used to value the resources at constant prices. At current prices, the corresponding inflation rates were applied to estimate the value.

Out of the total land area of the region, 84.9 percent or 1,553,599 hectares are considered forestlands. Although considered forestlands, not all of the 84.9 percent are tree-covered areas. As of 2018, the region's total forestland area covers 897,595.8 hectares which is equivalent to 49.1 percent of the region's total land area of 1,829,368 hectares. In terms of volume, the closing stock of standing timber resources add up to 153.190.0 million cubic meters in 2018. Both the area and the volume of timber posted an increase during the period covered.

The monetary asset accounts also posted an increase in the valuation of timber resources from 1999 to 2018. The volume of the closing stock of timber resources at the end of the period was valued at PHP 483.8 billion at current prices and PHP180.2 billion at constant prices.

Land Asset Accounts: The Cordillera Experience

By

Aldrin Federico R. Bahit, Jr. and Jeanniel I. Barcayan

Abstract

This paper will present the asset accounts for land of the Cordillera Administrative Region (CAR) covering the period 1999-2018. The project the aims to support the institutionalization of environmental-economic accounting following the United Nations System of Environmental-Economic Accounting (SEEA) 2012 Central Framework, the framework utilized in the compilation of land accounts of CAR.

The study presents the asset accounts for land in physical and monetary terms. In physical terms, the land cover in hectares was estimated with the corresponding changes in stocks. The 2010 and 2015 Land Cover map data of CAR prepared by the National Mapping and Resource Information Authority (NAMRIA) were used as references in assessing the stock of land in the region.

For monetary accounts, the economic use of the land is considered and then valued using the zonal value per square meter matrix from the Bureau of Internal Revenue (BIR). The corresponding changes in the stock of land were also valued accordingly.

The physical asset accounts for land showed increase on the area of tree-covered areas, shrub-covered areas, crops, artificial surfaces and inland water bodies. On the other hand, the area of grassland and terrestrial barren land decreased as an effect of the growth of the other land classifications.

The monetary asset accounts also posted an increase in the valuation of land within the period covered. The sum of all the value of land use classification amounted to PHP 1.5 trillion by the end of 2018.

Improving the Estimation Methodology of Cultivated Assets in the Philippine System of National Accounts (PSNA)

By

Mark C. Pascasio, Gerald Junne L. Clariño, Anthony B. Abalos, Grant Rene C. Mesa, Rica D. Corpuz and Naha Marie T. Bañoc

Abstract

According to the 2008 System of National Accounts (SNA), fixed assets are produced assets that are used repeatedly or continuously in the production processes for more than one year that are under direct control, responsibility and management of institutional units. This includes not only structures, machinery and equipment but also cultivated assets such as trees and animals which are used for breeding, dairy, draught, orchards and other plantations of trees.

However, due to limitation of data, established methodologies and intricacies of these assets, accounting these items posts challenges. Field visits were conducted to collect parameters that will aid in the improvement of the estimation procedure of Breeding Stocks and Orchard Development (BSOD) in the Philippine System of National Accounts (PSNA).

This paper presents initial estimates of BSOD for the overall revision and rebasing of the PSNA. This also enumerates the limitations of data sources and some developments that need to be done on agricultural surveys and censuses.

Statistical Approaches for Improving Landslide Disaster Preparedness

By

Decibel F. Eslava, Wilbur Z. Mañibo, Beth Zaida H. Ugat, Joey Phillip B. Torres, Jenielyn T. Padrones, Loucel E. Cui, Nathaniel C. Bantayan, Cristino L. Tiburan Jr., Carla B. Dimalanta, Shirley J. David, Flaviano D. Hilario, Ben Jong Dao-Jou and Wei-Yu Chang

Abstract

Landslides in the Philippines are a regular occurrence, and they often result in problems that range from minor road nuisances to major damages to properties and lives, and loss of incomes in the millions of dollars. To improve the capability of communities to prepare for and mitigate damages from landslides, a multi-parameter early warning system is being developed through the generation of enhanced landslide susceptibility maps and a rainfall warning protocol that is based on thresholds for landslide triggering events. Parameters that were considered as inputs for the maps, such as geologic, geomorphologic, hydrogeologic and land use/land cover data, were refined using the Analytic Hierarchy Process. A database of historical rainfall-landslide data was put together through a combination of near-real time monitoring, secondary data mining, and citizen science. The paucity, coarseness, or the complete lack of precipitation data near the landslide sites were augmented through various approaches. These involved the use of remotely sensed information, and the testing and use of various interpolation methods. Some statistical approaches included the Spline, Natural Neighbour, Krigging, and Inverse Distance Weighted methods to compare spatial predictions with observed data. Accuracy assessments will also be presented.

The study produced rainfall-landslide thresholds that can be used for designing early warning systems for communities underlain by slightly mature volcanic deposits in the southern Luzon region. In general, results indicate that most landslides in this region are triggered when rainfall intensities reach >23mm/hour. However, some slope failures have also developed at lower rainfall rates of ~15mm/hour. In steep to very steep slopes, rainfall rates of approximately 20mm/hr have triggered the most number of landslides, but lower threshold events have also been reported. Slope failures in different landcover types were also assessed. Agricultural croplands planted to annual crops appear to have the lowest rainfall-landslide thresholds, followed by built-up areas. Regions covered by forests have had the fewest number of landslides, which also registered higher rainfall thresholds. The huge variability in the generated thresholds highlights the fact that such values need to be generated as site-specific limits, especially considering the Philippines' extremely heterogenous geologic and geomorphic characteristics.

Harnessing Exposure Data from National Census Data for Hazard Impact Estimation

By

Maria Leonila P. Bautista, Bartolome C. Bautista, Ishmael C. Narag and Renato U. Solidum, Jr., Ph.D.

Abstract

One key component in developing disaster preparedness plans is the availability of science-based impact calculations that can be used by disaster managers to prepare realistically to a given hazard scenario. To do these calculations, one would need hazard inputs, appropriate fragility curves and exposure data. Hazard can be provided by mandated government agencies using simulation and mapping tools while engineering fragility curves that relate probability of being a certain damage state to a given level of hazard for a particular building type maybe developed by the engineering community. The most difficult to acquire among the three inputs is the exposure data, which refers to elements-at-risk, because such data are not readily available in our current country datasets. While the best method would be to gather exposure data using a bottom up approach where local government units perform the collection of data, another faster approach would be the top down approach wherein data are gathered from existing national datasets like the building and population data of the Philippine Statistics Authority (PSA). This would entail doing statistical analysis in the PSA data to relate wall and roof combination to building types with existing fragility curves. As it is, the current decadal PSA household-level questionnaire data related to buildings and population would just gather the wall and roof types of each household. Having only such information are not enough because they are not directly relatable to Philippine buildings types wherein fragility curves exist. This study will discuss the method that was developed by the Philippine Institute of Volcanology and Seismology together with Geoscience Australia (GA) and University of the Philippines Institute of Civil Engineering (UPD-ICE) to cull this set of information from the PSA dataset. Said method is now being used to develop statistically-derived exposure database for the Philippines for calculating impacts due to earthquakes, severe wind, flood and tsunami.

In the next decadal population census, it is best that PSA gathers the actual building types and population so that appropriate exposure data attributes can be collected and therefore be used to obtain more accurate impact assessment results. A collaboration between PSA and hazard agencies like PHIVOLCS, PAGASA and Mines and Geosciences Bureau (MGB) to craft a fit questionnaire to elicit building and population information useful for impact estimation is long overdue.

What are Disasters and How Do We Count Them?

By

Jake Rom D. Cadag

Abstract

Disasters are among the most profound threats to the human society. Human suffering, physical and economic damages especially in the event of a major disaster event could undermine years or decades of continuous efforts for development of any countries or localities. Concerned stakeholders such as governments, non-government organizations, private sectors, grassroots organizations and local people respond to such threats by engaging in disaster risk reduction (DRR). And often, the measure of success or failure of such DRR efforts rely on disaster statistics i.e. number of disaster occurrence, number of people killed or affected, value of economic damage, etc. In the Philippines, however, disaster statistics remains sparse and thus less useful for the purpose of measuring the effectiveness of DRR efforts in the country. How many disasters have occurred in the Philippines in a given period of time? Are they increasing or decreasing? Where did they happen? What are the impacts? These are some of the questions that need answers if effectiveness of DRR in the country is to be measured. This paper provides an overview of the state of disaster statistics in the country based on available international and national data. It argues that any efforts to establish a disaster database or a standard system for disaster statistics must start with problematizing the multiple definitions of the term “disaster.” The paper then presents key challenges and prospects for establishing disaster database and statistics in the country.

Challenges in Designing and Implementing Research and Development Surveys in the Philippines

By

Dalisay S. Maligalig, Ph.D., Maurice B. Borromeo, Ramoncito G. Cambel, Ronald R. Roldan, Jr. and Clifford B. Lesmoras

Abstract

To spur technological innovation which is a proven driver of competitiveness of many countries, and hence, economic growth, research and development (R&D) needs to be strengthened Policies that can stimulate R&D need to be formulated and monitored. Good quality data are needed for this purpose. Data on expenditures and personnel in R&D are important to identify areas that can be improved, to develop viable approaches in promoting R&D and to allocate the limited funds for R&D. These data, however, are not easily compiled because of the wide variety of institutions that are undertaking R&D – in business and industry, in the academe, in government and in civil society in general.

The Department of Science and Technology (DOST) has been collecting R&D data through surveys administered to government agencies, higher education institutions and nonprofit private institutions, while the Philippine Statistics Authority gathers R&D data from the business and industry sector. This paper discusses the challenges that are commonly experienced in conducting these surveys like non-coverage, nonresponse and measurement error. Examples of these issues will be discussed and viable solutions will be offered so that good quality data in R&D can be achieved.

Factors Affecting the Integration of ICT in Science and Mathematics Teaching in Selected Science, Technology, and Engineering (STE) – Implementing Schools in the Philippines

By

Randolf S. Sasota, Ruby R. Cristobal, Ph.D., Imelda S. Sario and Josette T. Biyo, Ph.D.

Abstract

The proliferation of digital technology, particularly information and communication technology (ICT), in the 21st century has challenged the status quo of educational setting and led to a paradigm shift in teaching and learning processes. ICT use and integration in teaching then becomes an essential component of pedagogical processes to have an effective teacher-student interaction and to optimize learning. Guided by the Will-Skill-Tool model developed by Knezek, et al (2000), this is a predictive model study on the factors affecting the integration of ICT in science and mathematics teaching in the Philippines using multiple linear regression. This research attempts to examine the factors affecting integration of ICT in science and mathematics (S&M) teaching in the Philippine context, particularly in selected Science, Technology, and Engineering (STE) – implementing schools (formerly, Science and Technology – oriented high schools), using the WST model, with inclusion of selected characteristics of S&M teachers. The results of the study revealed significant predictors of ICT integration in S&M teaching, which include the following: marital status, type of teacher, attitude towards ICT, ICT skills, and availability of ICT resources. It was concluded, then, that high ICT integration in teaching is more likely among single, science teachers, those with high positive attitude towards ICT, with high ICT skills, and schools with more available ICT resources. Among these significant factors, the attitude towards ICT indicated the highest predictive value, followed by ICT skills.

Analysis of Factors Affecting the Efficiency of Department of Science and Technology (DOST) Grants-in-Aid (GIA) Program, 2019

By

Emiliano M. Santos, Rowena Cristina L. Guevara, Ph.D., Armela K. Razo and Allen Joseph A. Ayson

Abstract

The Department of Science and Technology (DOST) believes that an enhanced research and development (R&D) is a prime mover to achieve an innovation-driven economic growth and national development. Through the DOST Grants-in-Aid (GIA) Program, the DOST provides funding on countless R&D undertakings and mobilization in the country. However, issues surrounding inefficient processes affects the implementation of these R&D projects.

The study aimed to analyze the factors affecting the implementation of DOST-GIA Program. Specifically, it focuses on the identification of factors which significantly affect the implementation of DOST-GIA Program. Extracting data from Special Projects Division of DOST, R&D projects from 2000-2018 were evaluated. Out of 3,354 R&D projects approved, 405 projects were randomly selected through stratified random sampling from five (5) sectors under the Harmonized National R&D Agenda.

The study employed a logit regression model to examine if the factors identified do affect the implementation of DOST-GIA Program. The independent variables to be examined in the study are: 1) delayed on the release of budget, 2) procurement process, 3) extensive signing of agreements (bureaucracy), 4) lengthy hiring of personnel/staff, and 5) force majeure. Assessing these indicators will determine which indicators mostly affect implementation of R&D projects.

Expenditure Analysis on PCIEERD-DOST-GIA Fund

By

Enrico C. Paringit, DEngg., Fra Angelico C. Viray and Tony Rose C. Tumaneng

Abstract

The paper explains the budget allocation of PCIEERD and DOST for the last 9 years, from 2011 to the 1st quarter of 2019. The data that were analyzed include projects evaluated and monitored under the 21 priority sectors of PCIEERD with the following information: budget allocation, sector affiliation, funding agency, and the year of project implementation. It was found out that a total of 12.8 B Php was used for the allocation of R&D projects in which 3.8 B Php or 30% was funded by PCIEERD-GIA while 8.9 B or 70% was funded by DOST-GIA. Among the 21 priority sectors, PCIEERD-GIA top 3 are listed accordingly: 1) Material Science (463M, 12%); 2) Space Technology Applications (417M, 11%); 3) Electronics Technology (407M, 11%) while bottom 3 are as follows: 1) Creative Industries (2M, 0.05%); 2) Metals and Engineering (24M, 0.64%); 3) Photonics (31M, 0.82%). As for the DOST-GIA, the top 3 sectors are the following: 1) Space Technology Applications (4.6B, 36%); 2) Food (1B, 11.3%); 3) Disaster Mitigation (983M, 11%); while the bottom 3 include: 1 & 2) Artificial Intelligence and Creative Industries (0M, 0%) and 3) Biotechnology (5M, 0.06%). In addition, three (3) more analysis is expected of this study, 1) to check if the current budget expenditure of DOST and PCIEERD is aligned with the Sustainable Development Goals (SDGs), 2) to further review the sector affiliation of a project, both in terms of its technology and application and 3) to approximate impact and outcome on the sector affiliated.

Statistical Inputs in Deciding Go/No Go for Generics and Biosimilars in Early Development

By

Christian Russel Reyes, Ruffy Guilatco and Mary Jane Cadatal

Abstract

Due to high cost of drug development and low likelihood that a drug will reach regulatory approval, an early development plan is needed to help determine the success of the drug development program. This paper will examine the role of a statistician in developing an early high-level clinical development plan for generics and biosimilars with inputs from the structural and functional analysis, and non-clinical results. Discussions will include the statistical tools and techniques used to overcome challenges in developing study design and estimating sample sizes to determine length, size and cost of clinical studies. Finally, the paper will also touch on simulating the probability that the test drug will meet technical success based on pilot studies or published data from the originator drug.

The "Milk Tea War": A Case Study on Using Social Media as a Source of Business Intelligence

By

Michael Van B. Supranes

Abstract

Billions of Filipinos leave footprints of their lives in social media sites. In this study, more than 23,000 posts from Twitter and Instagram were analyzed to describe the competition among six popular milk tea brands, representing both "old" and "new" generations. The researcher sampled posts generated within the Philippines, mostly in Metro Manila, from January 2014 to June 2019. Google Trends was also used to supplement discussion. Exploratory Data Analysis was used to understand the data, and ARIMA models were used to evaluate the social media presence of brands in 2019. Data show evidence of changing social media landscape, as more people use Instagram to share their milk tea experience. Data show that curiosity may not always lead to "social-media-worthy experience", as some brands peak in terms of google searches but not in terms of social media mentions. ARIMA models hinted which brands are gaining momentum in 2019. Interestingly, momentum gains may be attributed to introduction of new products, and/or the brand's strategic campaigns.

Improving Hit Rates for and Operational Efficiency in Detecting Solar PV Panel Installations in the Philippines

By

Patrick H. Mosqueda

Abstract

The Philippines is one of the first countries in Southeast Asia to introduce the net-metering program which offers incentives to customers who produce their own supply and sell back the excess electricity to the grid. Distribution utilities (DUs), under the Renewable Act of 2008, are mandated to enter into a net-metering agreement with qualified end-users who will be installing renewable energy system. Despite this policy, majority of the end-users remain unregistered. A major DU in the country aims to identify these unregistered installations to adequately assess the power distributed through the network, monitor its effect to the grid stability, and assess possible revenue loss. The DU did a pilot study by collecting data via field inspection in target areas and manual examination of satellite imagery from maps available online. However, this proved to be tedious and inefficient, with only less than 1% hit rate. Acquisition of the latest advanced technologies, though effective, is very expensive. This paper aims to recognize the value of statistical machine learning (SML) in this situation. The DU's customer data, along with the data collected in the pilot study, was employed in generating predictive models using Microsoft Azure Machine Learning Studio, a cloud-based machine learning tool. With the SML techniques and advanced data analytics implemented, results showed a significant increase in hit rate and so a more efficient inspection process.

Measuring the Ocean Economy: Towards the Compilation of the Philippine Ocean Economy Satellite Accounts

By

Lisa Grace S. Bersales, Ph.D., Vivian R. Ilarina, John Lourenze S. Poquiz, Jenny Lou Z. De las Alas and Janel Asley Z. Raviz

Abstract

The Philippines is comprised of about 7,100 islands with a combined coastline stretching for 36,289 kilometers. It would be an understatement to argue that coastal and marine resources play a critical role in the country's overall economy. This study presents experimental estimates of an 'Ocean Economy' Satellite Accounts for the Philippines. The Ocean Economy, in this context, would include economic activities that either take place in the ocean, receive input from the ocean, and/or provide goods and services to the ocean. In this exercise, expands the existing coverage by including industries such as electricity production, accommodation services and recreational services in the estimates. The experimental estimates cover the period 2012 to 2017 by highlighting the contribution of the ocean economy to the Gross Domestic Product (GDP). The estimates show that while the value of goods and services produced ocean-related industries are growing over time, the share of these industries to the overall economy is declining. A discussion of some statistical challenges particularly on framework, data and methodology in the compilation of the ocean economy will be provided.

Impact of Gross Domestic Product to Water Consumption of Manila Water (2010 to 2017)

By

Adora Candyd Vilar and Minnette Lois Morales

Abstract

Domestic water usage is categorized to have an inelastic demand, this conveys that regardless of the price the demand for the goods stay constant. To sustain the constancy of the demand it is crucial to have a model that could represent the future demand to enable sustainable water resource management. In this study, water consumption in east zone of Metro Manila and the socio-economic development represented by Gross Domestic Product (GDP) were analyzed. The water consumption in million liters per day (MLD) was patterned to quarterly data points to mimic GDP data and was segmented to three levels; residential commercial and global (all east zone of Metro Manila consumers). Each segment was processed and analyzed using linear regression and error correction model (ECM). The results based on the linear regression model showed that for every 1% increase in GDP water consumption of global, residential and commercial increases by 0.406%, 0.477% and 0.182% respectively, while for ECM 2nd and 4th lagged values of GDP constitute to the increase and decrease of water consumption.

Adopting the System of Health Accounts (SHA) 2011 in the Compilation of the Philippine National Health Accounts (PNHA)

By

Vivian R. Ilarina, Alma S. Bello and Maegan S. Saroca

Abstract

The existing series of the Philippine National Health Accounts (PNHA) was compiled by the Philippine Statistics Authority (PSA) using a methodology developed between 1991 and 1995, and this methodology has not changed since the first publication of the said accounts in 1991. These estimates, however, are not able to address specific policy questions such as “Who provides health care services?” “Under what type of financing schemes are health care services provided?” and “How much are invested into health care each year?”, among others. Moreover, these estimates involved under coverage and the usage of old parameters, and were not comparable with Health Accounts estimates produced by other countries since they do not conform to the standards set by World Health Organization. The PSA addresses these issues by adopting the System of Health Accounts (SHA) 2011, the current international standard for health accounting recommended by WHO, Eurostat and the Organization for Economic Cooperation and Development (OECD). In this paper, we describe the major changes in the PNHA resulting from the adoption of the SHA 2011 guidelines. We present estimates on total health expenditures, health capital formation expenditures and current health expenditures by revenues of health financing schemes, by institutional units providing revenues to financing schemes, by financing agent, by health care financing scheme, by health care providers and by factors of health care provision from 2014 to 2018 (Provisional).

Monitoring Child Poverty and Exclusion through the Community-Based Monitoring System (CBMS)

By

Celia M. Reyes, Ph.D. and Anne Bernadette Mandap

Abstract

This paper aims to develop a measure of multidimensional poverty for children using data from the Community-Based Monitoring System (CBMS). The child multidimensional poverty measure based on CBMS data shows the nature and extent of deprivations of children in terms of nine (9) dimensions covering non-income and income measures of poverty.

The limitation in national statistical system to generate the necessary disaggregated data for local planning is a major challenge in addressing child poverty and exclusion. This is a key policy concern for developing countries like the Philippines with a decentralized system of governance and limited resources competing to address various thematic issues including the achievement of the SDGs.

The global call for meeting the sustainable development goals (SDGs) requires for a regular and up to date source of information for more informed decision making, program implementation and impact-monitoring overtime. More importantly, the core SDG principle of “leaving no one behind” further asserts the need for disaggregated data that will facilitate a better and more comprehensive understanding of the development situation and needs of the different sectors of the population, and more evidence-based design and prioritization of appropriate interventions particularly for the vulnerable groups including women, children, youth, persons with disabilities among others.

This paper aims to show the use of the CBMS to generate the necessary disaggregated data for monitoring child poverty and exclusion, establish and sustain a local level database for more informed planning and budgeting that can lead to more targeted interventions for children, and facilitate impact monitoring overtime. The study will show how the implementation of the CBMS methodology can complement the national statistical system by facilitating the generation of necessary data for measuring poverty indicators (including the computation of child MPI) at the local level, for geospatial mapping of deprivation indicators relating to children, and more importantly point out specific areas of deprivations for priority policy and program action.

When it Rains, it Pours? Analyzing the Rainfall Shocks-Poverty Nexus in the Philippines

By

Connie B. Dacuycuy, Ph.D.

Abstract

Weather is an integral part of our life and weather shocks can have severe implications on welfare. Given evidence that points to climate change resulting in altered patterns of weather parameters and given that the Philippines is one of the most vulnerable countries to climatic shifts, this paper aims to contribute to poverty studies in the Philippines by analyzing the poverty-rainfall shock nexus. The paper finds that rainfall shocks affect wages and income, which in turn, affect chronic total and chronic food poverty. Some policy directions are provided.

Estimates of Vulnerability to Poverty: Trends from 2003 to 2015

By

Jose Ramon G. Albert, Ph.D. and Jana Flor V. Vizmanos

Abstract

The Philippine Development Plan and the Sustainable Development Goals mainstream the reduction of poverty, whose measurement and diagnostics is ex post. The government however needs to broaden the scope of assessments and take account of the dynamics in poverty in public policy. A critical dimension to poverty dynamics is vulnerability, which pertains to the risk of future poverty. This study continued previous work that involves estimating the vulnerability level of households to income poverty using a modified probit model incorporating income and other poverty data sourced from the Family Income and Expenditure Survey, as well as the country's official poverty lines. We first test out vulnerability estimation for panel data and show how the methodology manages to predict fairly well future poverty. Trends in vulnerability are then developed for cross sectional data from 2003 to 2015. The vulnerability assessment in this study provides inputs to forward-looking interventions that build the resilience of households to future poverty. The study makes a case for the need to make use of both poverty and vulnerability estimates in programs and come up with differentiated actions for those highly vulnerable and relatively vulnerable.

The National Food Consumption Quantification Study: An Attempt to Utilize Data and Statistics for Policy Formulation Towards Food Security

By

Romeo S. Recide, Maria Ruzella D.P. Quilla, Raymundo J. Talento and Kattleya C. Torrecampo

Abstract

Discussions on food security render our policymakers to deal with the relationship between agriculture, natural resources, climate change, population growth and economic development among other factors. As such, information analysis and expectations in the coming decades are in high demand to answer many questions related to food security and nutrition (FSN). By using some statistical and economic concepts and procedures, the National Food Consumption Quantification Study (NFCQS) will try to analyze secondary data and generate forecasts necessary for the formulation of strategies, plans and programs on selected commodities. In this paper, details will be presented on the approach employed in the study, as agreed together with the Department of Agriculture and other collaborating agencies. The NFCQS aims to contribute in the discussion of FSN, by looking into the ways that specific critical factors of consumption and production of selected commodities must be managed, controlled, or provided by responsible agencies or groups. In terms of production, this study will also look into methods that are sustainable in consideration of the issues of climate change and the depleting natural resources. The study will focus primarily on the supply and demand situation of 9 major food commodities by determining their production and consumption at the national level with corresponding strategies documented in a Food Production Strategy (FPS). Further, the FPS will be adapted in 6 selected provinces to demonstrate how it may be localized based on the production and consumption trends, and nutrition situation in the province. On the scope of the study, the whole exercise intends to showcase a process that can also be replicated for other commodities and provinces that are not covered by the project. With that, training is included in the project to capacitate the Department of Agriculture in terms of basic and inferential statistics and statistical modeling, and their use for policy formulation and analysis, and monitoring and evaluation.

Philippine Rice Trade Liberalization: Impacts on Agriculture and the Economy and Alternative Policy Actions

By

Nicostrado D. Perez, Ph.D. and Angga Pradesha

Abstract

Quantitative restriction (QR) on rice import has been a longstanding instrument of the Philippine government that regulated the importation of rice, protected rice farmers and supported the drive for rice self-sufficiency of the country. However, with the passage of the Republic Act No. 11203 or the Philippine rice trade liberalization law in February 2019, the QR was lifted and re-placed with import tariffs instead. This policy shift can have far-reaching impacts not only to rice and agriculture but to the entire economy and to the global rice market as well – with important implications to the general welfare, nutrition and food security of the country. Hence, an ex-ante impact assessment study was commissioned by NEDA aimed at simulating, quantifying and understanding the effects of rice liberalization on farmers, consumers and various stakeholders and to the economy as a whole.

The main economic tools applied in the study are the Inter-national Food Policy Research Institute (IFPRI) International Model for the Policy Analysis of Agricultural Commodities and Trade (IMPACT) model and the Philippine Dynamic Computable General Equilibrium (Phil-DCGE) model. IMPACT is a global partial equilibrium model with a country-level module specifically calibrated for the Philippines. It is a suite of interlinked bio-physical and economic models that integrates crop, water, and climate modules. Phil-DCGE, on the other hand, is a computable general equilibrium (CGE) model specifically developed for the Philippines by IFPRI that extends climate change and policy simulations beyond the agricultural sector to other sectors of the economy and tracks each variable through annual time-steps. The main findings of the study are the following:

1. Domestic rice production is to decline by as much as 9.7 percent (1.3 million mt) from 7.2 percent reduction in harvested area (342,000 hectares).
2. Rice imports are projected to increase to 3.97 million mt by 2025 – an increase of 2.34 million mt from QR level;
3. The increase import volume from the Philippines can be absorbed by the world rice market with minimal increase of only 0.64 percent in world price;
4. At equilibrium import volumes, consumer and producer prices of rice are to drastically decline by 26 percent;

5. Nutrition status of the country is to improve with 2.1 million less hungry people and malnourished children; and
6. Investment in both agricultural R&DE and selective irrigation expansion under liberalized rice trade can boost the competitiveness of rice as an import substitution industry – thereby reducing dependence on rice imports from around 3.9 million mt to 460 thousand mt by 2040.

Estimating the Benefits of Coastal Resource Management (CRM) Programs: Implications for Planning and Financing Towards Blue Economy Aspiration in the Philippines

By

Mercedita A. Sombilla, Jane Desiree Andal, Diane Gail Llanto, Karen See and Rico Ancog

Abstract

This study offers an estimation of the benefits of the Coastal Resources and Management (CRM) programs in the Philippines. As an archipelagic country, CRM has become a major intervention in the Philippines targeted at halting threats to coastal and marine resources while ensuring the maximization of its socio-economic potential. Recently, the appreciation of the economic values of the coastal and marine resources has spawned more interest due to the blue economy aspirations at the national and local levels. Using a bio-economic model, this study confirms that the projected fish biomass across the 24 municipalities in the Philippines covered in this study are increasing over time and are higher under the enhanced CRM scenario as compared to BAU CRM scenario. The implementation of CRM will produce optimal yield projections that are greater than the BAU CRM scenario. Across LGUs, the computed market value of the fish biomass average as projected for 15 years are all higher under the enhanced CRM scenario, clearly confirming that CRM has a positive effect in terms of improved fish resources. However, the magnitude of the projected benefits under enhanced CRM scenario would be significantly reduced if the negative growth rates of the fish biomass remain unabated. Of the 24 municipalities assessed in this study, 11 have shown negative growth rates across the 15-year duration as carrying capacity is decreasing along with the average projected fish catch per year. With negative growth rates, it is expected that across the projected fish biomass trajectory, there are points in time where the projected fish catches will exceed the carrying capacities for a given time period. Hence, CRM programs must be designed in a way that could effectively avert the negative growth rate of the fish biomass to ensure sustainability of the coastal and marine resources. For instance, the CRM programs must include strategies related to controlled harvest and making sure that this is done in observance of the computed maximum sustainable yield of each of the municipalities. Overall, an effective and sustained management of coastal resources is important to enhance production of fish in the context of the CRM implementation in the Philippines for the past years. Among the major barriers for its full success that therefore needs immediate attention are: 1) incomplete baseline data and resource assessment, 2) poor implementation of coastal and marine management plans, 3) limited funding sources to support CRM activities, and 4) limited availability of financing mechanisms to help sustain CRM activities implementation.

Impact of Tax Policies and Trade Reform to Food Security in the Philippines: A Computable General Equilibrium Analysis

By

Polaris C. Bautista

Abstract

This paper investigates the impact of tax policy changes and trade reforms to food security in the Philippines. The Social Accounting Matrix (SAM) was developed using the 65X65 2012 Input and Output (IO) Transaction Table collapsed into two sectors: Food and Non-Food. The effects of tax rate changes to food security and welfare were examined by analysing the changes in the total output of goods and household consumption using the static general computable equilibrium (CGE) model utilizing the FORTRAN program. Results show that decreasing taxes without balancing the budget yields the highest economic and food security indicators. On the other hand, increasing taxes with a balanced budget keeps the country food secured. Moreover, welfare increases as tax increases with a balanced budget as oppose to tax increases without a balanced budget. Additionally, income of the food sector is maintained as compared to tax increases with a balanced budget and ban on exported goods.

Accounting the Mineral Resources of the Cordillera Region

By

Aldrin Federico R. Bahit, Jr., Jeanniel I. Barcayan and Stephen Dale C. Estigoy

Abstract

This study measures the metallic and non-metallic mineral reserves in the Cordillera Administrative Region CAR, specifically the asset accounts for gold and copper reserves and productions of silver, sand and gravel, quicklime, slake lime and limestone following the United Nations System of Environmental-Economic Accounting (SEEA) 2012 Central Framework.

It presents the physical and monetary asset accounts for metallic mineral reserves covering a 13-year period from 2004 to 2016. In physical terms, the declared reserves of the large-scale mining companies were used as inputs to determine the stock of gold and copper reserves in ore form and metal content. For monetary accounts, the Net Present Value (NPV) approach was applied in the valuation using 12 percent and 15 percent discount rates.

In line with the framework, three classes of gold and copper were derived: Class A – minerals that were being mined; Class B – minerals that can be mined in the future with researches and exploration done; and Class C – minerals that have a probability to be mined where studies were conducted and a high level of confidence that it can be mined. The mineral reserves are estimated and presented in ore form and in metal content for all classes.

This paper will also present the estimated mine lives for both gold and copper reserves. As for silver and the other non-metallic minerals (sand and gravel, quicklime, slake lime and limestone), only their production value can be compiled. Tables are prepared for quantity and value of production.

Caraga Land and Timber Asset Accounts: Challenges and Approaches

By

Rosalinda C. Apura, DM and Melchor P. Bautista

Abstract

The Caraga Asset Accounts for Land and Timber Resources are the initial compilation following the United Nation System of Environmental-Economic Accounting (SEEA) 2012 – Central Framework. These provide statistical information that will be significant for the foundation of the region's data bank for environmental statistics.

Land and timber accounting compiled both physical and monetary accounts using the SEEA 2012 – Central Framework. The Land Asset Account covered the estimation from the period 2003 to 2015. While, the Timber Asset Account covered the valuation from the period 2000 to 2015.

The result of the land accounting exhibits the total hectarages for the crops land, the forest cover area (for open and closed forest), the mangrove forest, the built-up area or the artificial surface, etc. It also reveals how areas shifted from one land category or classification to another as a result of various economic development in the region.

On the other hand, timber accounting shows the area and the volume of timber resources and its monetary value throughout the accounting period. The result confirms major contribution of forest/timber production in Caraga to the country's total timber production.

During the compilation however, several challenges was encountered by the Technical Working Group (TWG). This paper presents the different challenges and the approaches applied that made the compilation of Land and Timber Accounts in Caraga successful. This may also serve as valuable input for other regions in their journey towards environmental accounting compilation.

Measuring the Level of Water Stress Using Physical Asset and Flow Accounts for Water Resources of the Philippines

By

Faith Lea B. Cabrera and Maria Loraine C. Satairapan

Abstract

Water is one of the most essential needs of human beings and is necessary in almost all economic activities. The Philippines, abundantly endowed with water resources, obtains its water supply from rivers, lakes, dams, and groundwater reservoirs. Although there are large water sources in the country, the increasing demand for freshwater due to the continuous growth of the population and expansion of economic activities result to extreme pressure on water resources. The water supply problem was brought about by decades of resource mismanagement, inadequate investments in physical infrastructures and the growing threat of climate change (SEPO 2011).

Recognizing the global effect of dwindling water supply, Target 6.4 of the United Nations Sustainable Development Goals (SDGs) covers substantially increasing water-use efficiency across all sectors. This target requires monitoring the level of water stress, which is characterized by freshwater withdrawals by all major sectors and total freshwater resources of the country.

This study aims to present the Philippine baseline data for SDG Indicator 6.4.2 Level of Water Stress for 2015. The total freshwater resource of the country is derived from the physical asset accounts while the withdrawal of freshwater by major sectors is obtained from the physical flow accounts for water resources. Both asset and flow accounts followed the UN System of Environmental-Economic Accounting (SEEA) 2012 Central Framework. Results showed that the stocks of surface water and soil water decreased by 20.4 percent in 2015, which is largely due to the abstraction of water as input to economic activities. More than 46 billion cubic meters of water was abstracted from the different water sources in the Philippines in 2015. Abstracted water for own use of the economic units comprised 94 percent of the total while the remaining six percent was distributed by water concessionaires and local water districts to other industries and to households. Of the six percent, four percent reached the users for final consumption while the other two percent was lost during the distribution process. The largest share of water abstracted for own use went to the agriculture sector while households received the largest amount of distributed water.

Development of a Philippine Dimensional Model for National Values

By

Michael Minkov, Ph.D. and Michael Schachner

Abstract

The Philippine Development Plan 2017-2022 identified the need for inculcating values for the common good among Filipinos, which will contribute to building a strong foundation for inclusive growth, a high-trust and resilient society, and a globally competitive knowledge economy. For that purpose, a dimensional model on Philippine culture was developed in order to make culture a measurable indicator.

After reviewing main cultural models, a questionnaire was drafted, focusing on two national culture dimensions that are known to be influential for national development: Individualism-Collectivism (IDV-COLL), which is highly correlated with national GDP, and Monumentalism-Flexibility (MON-FLX), a predictor of educational achievement. These dimensions of national culture split into several facets when measured at the individual level, which is relevant for comparisons within a country rather than between countries. IDV-COLL splits into Conformism (being obedient, following traditional rules and wishing to impose rules on others), Exclusionism (discriminating against people on the basis of social or biological groups), and Need for Achievement (competing to achieve higher social status). MON-FLX splits into Self-Stability (being always the same person), Self-Enhancement (having a high opinion of oneself) and Interdependence (helping others and exchanging favors).

The Big-Five personality traits conscientiousness, neuroticism, openness, agreeableness, and extraversion were targeted in addition to the facets of national culture dimensions. The questionnaire was reviewed by local scientists, translated into Filipino and tested with a focus group. In a pilot study with 1200 respondents, 107 items were fielded.

The resulting data was analyzed through factor analyses and multi-dimensional scaling (MDS). All targeted constructs were found and could be validated as predictors of behavior, such as the frequency of praying, the use of social media, or exercising. The newly developed model can be used as input for policy-making and as future control mechanism to ensure that cultural changes are moving towards the right direction.

Assessment of the Anti-Red Tape Act Implementation for the Ease of Doing Business Act: Lessons from a Mixed Methods Approach

By

Kidjie C. Saguin and Kathleen G. Jovellanos
with Thinking Machines Data Science

Abstract

In 2018, Republic Act 11032 or the Ease of Doing Business and Efficient Government Service Delivery Act was passed, which expands Republic Act 9485 or the Anti-Red Tape Act (ARTA) of 2007. The EODB Law takes off from the achievements of the 2007 ARTA as implemented by the Civil Service Commission through its ARTA Integrated Program, and further incorporates the lessons and momentum from the Ease of Doing Business initiatives of the Department of Trade and Industry, the National Competitiveness Council, and their partners. Against the backdrop of the preparation for transition and the finalization of the Implementing Rules and Regulations, an assessment was conducted on the efficiency, effectiveness, and relevance of the ARTA implementation, which utilized an integrated mixed methods approach: statistical analysis, case study method, and data science techniques.

The conference paper shares the key findings of the assessment, including policy insights on leveraging on the ARTA standards that have become a normative reference for frontline government services, revisiting the anti-corruption goals of the anti-fixing campaign, and increasing efforts to account for capacity of the frontline offices to deliver according to standards. The discussion employs self-reflexivity, as to how the researchers used three different methods to address data robustness issues, national and subnational lenses, and triangulation towards a coherent assessment narrative.

The discussion ends with a special focus on a data science approach using machine learning and visualization methods, with emphasis on understanding factors affecting customer satisfaction. Ways forward in using data science and machine learning in evaluation studies are also discussed. The conference paper is an off-shoot of the assessment as supported by the National Economic and Development Authority and United Nations Development Programme – Strategic M&E Project.

Statistics Literacy in the Changing Data Landscape

By

Josefina V. Almeda, Ph.D.

Abstract

One of the pedagogical challenges in teaching statistics is the changing data landscape. Evidence based data emerge from various sources like open data and big data. Answers to issues and concerns of society may be addressed by making use of these developments. Given these developments, the Philippine Statistical Research and Training Institute (PSRTI) updates their training course syllabus by highlighting statistics tools on modeling, large samples, multivariate description, and data visualization. The increasing diversity of its training participants, data users and data producers in the government, learn to apply these statistical tools and techniques to various data sets either big or small to be one in coming up with programs and policies that will improve the quality of life of the Filipino people. Training courses focus on critical thinking and skills on data management and modeling. Likewise, emphasis is given on effective presentation and accurate interpretation of evidences since these are necessary competencies to come up with informed decisions. The PSRTI continuously upgrade the quality of government stakeholders and expand the manpower base that will undertake statistical work and contribute to the improvement of statistical activities.

Nonparametric Test of Assumptions of Spatiotemporal Model with Mixed Frequencies

By

Daniel David Pamplona

Abstract

The estimation procedure of a spatiotemporal model with mixed frequencies rely on the assumption of constant covariate effect across spatial units and time points. With this, a nonparametric procedure based on the bootstrap is proposed to validate the assumption of the model. The test makes use of distances from limits of non-overlapping confidence intervals of the parameter of interest in estimating homogeneity of covariate effect across units or time. Simulation studies show that the size of the proposed test is consistent to be less than the nominal level of significance under different scenarios. The power of test increases to 1.0 as alternative parameter values become more distant from the common value, and similarly, as the frequency of spatial units / time points with alternative parameter values increase. Sensitivity of the test decreased under the presence of large errors in the model, especially when the autocorrelation of error terms is high.

Semiparametric Mixed Analysis of Covariance Model for a Nested Design

By

Maricar Moreno

Abstract

A nonparametric test for a postulated semiparametric mixed analysis of covariance model for a nested design is developed. In the nested design, the parametric part corresponds to the main treatment and nested effects while the nonparametric part corresponds to the fixed covariate. A hybrid backfitting algorithm was used to estimate the model. Further, a bootstrap-based test was also used to test the significance of the treatment effects. Simulation shows that the proposed test procedure is correctly-sized for models with random and mixed treatment effects. The test performs better when the replicate size is small and - more powerful than the ordinary analysis of covariance in the presence of misspecification error, nonnormality of errors and dominating covariate effect.

Inference on High Dimensional Discrete Choice Model

By

Danilo R. Si

Abstract

Discrete choice models are appropriate in describing consumer choice but as the number of predictors greatly exceeds the sample size, the model might give prediction errors. Variable selection thru dimension reduction for high dimensional discrete choice model is conducted. The process starts from the dimension reduction using Penalized Matrix Decomposition- Sparse Principal Components and General Adaptive Sparse Principal Component analysis. The variables that were selected by the dimension reduction will be subjected to the local scoring algorithm and backfitting algorithm for discrete choice model proposed by Abe (1999). The significant predictors resulting from the backfitting went into the BH procedure to lower the false discovery rate. Simulation shows that most of the balanced cases are correctly sized and consistently the proposed test procedure is more powerful than the ordinary Bonferroni test.

Forecasting the Philippine Inflation Rate Using Box-Jenkins Autoregressive Integrated Moving Average and Multi-Layer Perceptron Neural Network Techniques

By

Victor Paul J. dela Cruz, Geoffrey A. Pamaylaon and Fe F. Largo

Abstract

This study was conducted to find a statistical model in forecasting the monthly Philippine Inflation Rate from January 2015 to December 2016 using Box-Jenkins Autoregressive Integrated Moving Average (ARIMA) and Multi-layer Perceptron Neural Network (MLPNN) techniques. The data were retrieved from Bangko Sentral ng Pilipinas and Philippine Statistics Yearbook published by the Philippine Statistics Authority. There are 336 data points where 324 (from January 1988 to December 2014) of the observations were used to identify the 'best' model of each technique and the remaining 12 were used for validation. Philippine Inflation Rate exhibits a decreasing trend in general and has a seasonal component based on the ACF and PACF plots. To select the 'best' models, R Statistical Software was utilized for ARIMA technique while Zaitun Time Series was used for MLPNN technique. It was found that $ARIMA(2,1,0)\times(0,0,1)12$ and $ANN(48,7,1)$ with bipolar sigmoid function are selected as 'best' model for the ARIMA and MLPNN, respectively. Both models were found to be adequate and their residuals were uncorrelated. Mean Absolute Error (MAE) was utilized to compare which of the two methods is better in forecasting the Philippine Inflation Rate. It was found out that ARIMA technique is a better technique than MLPNN.

Regional Food Price Differentials in the Philippines

By

John Mark A. Paica and Jennifer E. Hinlo

Abstract

Domestic food prices differ by locations and there exist regional differences due to distance, transportation costs, value chain and supply chain inefficiencies. With these issues at hand, this study aims to investigate the regional food price differentials in the Philippines and address what are the possible key drivers that could lead to significant increments in food prices. The study anchored on the price differential model by Gonzalo et al (2012). Results show that significant factors affecting price differences differ per region because of unique issues faced by producers and consumers in different locations.

Comparison of ARIMA and Singular Spectrum Analysis in Forecasting the Philippine Inflation Rate

By

Arniel A. Alderite and Anthony F. Capili

Abstract

In this study, an appropriate forecasting method for the Philippine inflation rate was determined. Specifically, the forecasting performance of the Autoregressive Integrated Moving Average (ARIMA) model and Singular Spectrum Analysis (SSA) were compared. The dataset on monthly inflation rate was divided into two samples, the in-sample data and out-of-sample data. These samples were analyzed and after application of the Box-Jenkins approach, the resulting seasonal model is ARIMA(1,1,0)×(0,0,1)12. This model has the least AIC among all tentative models and the behavior of its residuals and forecast errors are satisfactory. SSA was also applied on the same samples and the most appropriate window length for the trajectory matrix is 25. In reconstructing the series, 10 eigentriples under three groups were used. The first group contains the trend component while the second and third groups contain the oscillatory components. Based on the computed in-sample and out-of-sample RMSE, SSA outperforms the ARIMA model. Thus, SSA is better than ARIMA in forecasting the Philippine inflation rate based on the sample data set.

Prevalence of Disability Among Filipino Individuals

By

**Plenee Grace J. Castillo, Elpidio A. Maramot,
Racquel Dolores V. Sabeñano and Daniel G. Varona**

Abstract

This study presents the prevalence of disability among individuals age 15 and over in the Philippines based on the results of 2016 National Disability Prevalence Survey (NDPS). The NDPS 2016 is a nationwide general population survey that adopted the Model Disability Survey protocol of the World Health Organization (WHO) and the World Bank (WB). The study aimed to have a direct comparison of the needs of and barriers faced by groups with differing levels of disability, including people without disability.

In the study, disability is the outcome of the interaction between health conditions or impairments and features of the physical, human-built, attitudinal and socio-political environment in which the person lives. These features might be access and use of personal assistance and assistive products, social support, attitudes of others, access to health care or the physical environment in which a person lives.

Results of the study include the characterization of the population through a disability continuum that ranges from low levels of disability (0) to very high levels (100). Based on the results, almost half of the population has moderate levels of disability while some 12 % have severe disability. Moreover, respondents from all levels of disability found certain aspects on their daily lives as problematic or hindering, such as their general environment and with being involved in or being able to make decisions due to attitudes of others.

Rapid Qualitative Assessment of the Impact of 4Ps on Nutrition Outcomes in Selected Municipalities

By

Michael Samson, Ph.D., Nard Huijbregts, Katharina Bollig and Thea Westphal

Abstract

Stunting and wasting of children remain a major public health problem in the Philippines and questions around the importance of the conditional cash transfer programme Pantawid Pamilyang Pilipino Programme (4Ps) on beneficiaries' nutrition status arose. This rapid qualitative assessment explored in how far the 4Ps has impacted the underlying causes of malnutrition at household level – food security, health care and care practices – and in how far these outcomes at household-level were translated into outcomes at the child-level in terms of dietary intake of children and their overall health. The assessment also looked at the circumstances under which the programme has achieved impacts and what main barriers to achieving impacts currently exist. The scope of the study entailed a rapid, largely qualitative assessment of the 4Ps' impacts on nutritional outcomes in six municipalities across the six provinces of Bulacan, Catanduanes, Lanao del Sur, Negros Occidental, Samar and Zamboanga del Norte.

The assessment found that the cash transfer had positively impacted the food security of most beneficiary households, and the quantity and quality of food consumed within the household. Beneficiaries reported that overall, the intake and diversity of food they consumed had improved because of the 4Ps. Beneficiaries also mentioned the family development sessions as a reason for the improved variety in their meals, as they learned to prepare different, more nutritious meals. With regards to the uptake of health care services, the 4Ps cash transfer had positive impacts as it helped 4Ps households to cover health-related costs, such as transportation to the health facility and costs of medicines unavailable in the facilities. The 4Ps also seems to have a minor impact on care practices of caregivers in beneficiary households, as the 4Ps cash transfer helped to reduce financial stress within the household, in turn affecting caregiver's well-being and their care practices towards children. Moreover, the FDS were mentioned as an information source for care practices, including feeding and cooking practices. With regards to the immediate causes of malnutrition at child-level, the assessment found that the dietary intake of most 4Ps beneficiary children has changed with the availability of more cash in the household. This applies to all children living in the household, irrespective of whether the individual child is enrolled in the 4Ps

programme. Moreover, most caregivers assessed their children as healthy and caregivers seemed to be aware of the effects that their own health has on their children's health. Next to strengthening household food security the 4Ps also functions as a platform to connect beneficiaries with other existing, complementary and supplementary initiatives.

Hence, overall, the 4Ps cash transfer has strengthened the food security of beneficiary households. The transfer constitutes a (more or less) regular form of household income, which allows households to plan their food expenditure accordingly. As a result, for most households the 4Ps cash grant positively impacts the quantity of foods that they buy, as well as the diversity of foods. Moreover, the family development sessions seem to have played a major role in empowering caregivers, particularly female caregivers. Through acquiring knowledge on a range of topics, they felt empowered and better equipped to handle their children in different situations and overall learned to be more confident in their interactions with children and other household members. Finally, through its linkages to other initiatives, 4Ps has shown to be able to promote impacts on household's food security and also sanitary environment, which will ultimately impact the health of children and other household members.

The assessment also found a range of factors currently hampering impacts of the programme. First and foremost, the 4Ps cash benefit level has not been adjusted to inflation since the programme roll out and hence its real value has decreased. With increasing food prices, beneficiary households cannot purchase the same amount of foods as they used to. Likewise, the limitation of the education grant to three beneficiary children per household has limited the cash transfer's potential to enhance household's food security. Furthermore, the irregularity and infrequency of payments in some locations constitutes a barrier for the cash transfer to achieve more profound impacts. Not knowing when the next payment comes reduces beneficiaries' ability to plan their food purchases and expenditure. Furthermore, reliance on the first wave Listahanan for targeting of the cash transfer means that all newly poor families and families that did not have children in 2009 yet, are excluded from the 4Ps programme. In addition to not reaching all poor and vulnerable households, the 4Ps programme currently also does not cover the youngest children living in 4Ps beneficiary households. Finally, during the FDS the transmission of knowledge and information to beneficiaries to induce behavioural change seems to be falling short. A major challenge to more effectively transfer knowledge and induce permanent change seems to be the format that the FDS are currently conducted in. The spaces are often too crowded and loud, and presenters do not make use of microphones and visual aids. Further, the modules on health and nutrition are short and do not provide detailed enough information and there is limited monitoring as to whether beneficiaries apply knowledge acquired during the FDS.

Social Inclusion for Inclusive Development: Are the Poor Isolated from the Rest?

By

Aubrey D. Tabuga, Ph.D.

Abstract

Achieving inclusive development has become the mantra in the global and national development discourse. A great deal of the initiatives towards inclusive development entails redistributive efforts and the provision of social protection for the poor. But often, the conditions of the poor are not just characterized by their limited economic means and low level of skills but also their inability to access various economic opportunities perhaps because of their social exclusion or social deprivation from others from whom they can obtain information on opportunities. Poverty and social isolation form a vicious cycle wherein the poor are isolated because their lack of means limit them from extending their reach to others, and this isolation in turn enforces their dire condition because they are unable to learn new and better opportunities. This paper posits that social deprivation has the ability to hamper inclusive development. It therefore aims to illustrate the characteristics of social networks that poor families have through social network analysis (SNA). It inquires on the questions – How are the poor situated within the community network? Are they isolated or integrated? Is connectivity correlated with economic inclusion? To examine social cohesion, this study uses social relations data (i.e. kinship and friendship ties) gathered in 2016 on all households residing in a rural, fishing village in the Philippines. Its primary objectives are: 1) to develop hypotheses that explains the poverty and social isolation cycle, and 2) to draw insights for developing or improving community-building efforts towards social and economic inclusion of the poor.

Impact Assessment of Community-Based Forest Management Agroforestry Development Program of Tagbao Farmers Association, Marilog District, Davao City

By

Maria Grace P. Moralde

Abstract

The CBFM Agroforestry Development Project is one of the major programs of the DENR geared towards poverty alleviation, food security, climate change mitigation and social mobilization of the upland farmers. The members of Tagbao Farmers Association is a beneficiary of the project. Its intervention were: procurement of 14, 625 cacao seedlings, 11,000 budded rubber, 225 bags of inorganic fertilizer, and 140 bags of certified corn seeds as cash crops while waiting for the fruition of their labor. The project was subjected to impact assessment after 5 years of implementation. The study's objective is to determine the impact of the project to the quality of lives among the farmer/beneficiaries on social, economic and environmental aspects.

Research design includes quantitative (through survey questionnaire) and qualitative approaches (through Focus group discussion and key Informant interview). Statistical treatment used was the t-test to measure the impact before and after the project. Data were presented in textual, graphical and tabular presentation.

There were 21 farmer/respondents of the study. For social aspect, t-test revealed high significant values at 0.001 in terms of changes in number of children sent to school, changes in house materials, increased membership in organizations and increased in linkages. For the economic aspect, t-test value of 0.000 is highly significant in terms of changes in household income brought about by the project's investment such as cacao and rubber plantations. For the environmental aspect, presence of both flora and faunal species still increased after 5 years because of tree plantation component.

The output of the project were recommendation on action strategies and policy measures in support for the sustained success of the project.

The Effects of Climate Change on Rice Yield of Pampanga

By

Camille Anne U. Lacap and Lenie G. Magat

Abstract

This study aims to analyze the effects of climate change on rice yield of Pampanga. The climate and yield used was for a period of 20 years between 1998 to 2017. Descriptive and inferential methods of research were utilized. The rice production in Pampanga showed an increasing trend within the 20-year period. The irrigated rice comprised 97% of the total rice yield while the remaining 3% came from rainfed rice. The correlation of rice yield vs. rainfall and temperature was also examined. It was found out that there is a no significant relationship between rice yield and temperature. While the relationship of rainfall and rice yield is inverse and significant. Taking into account the monthly averages of rainfall and temperature as well as the climatic needs of the different stages of development of rice, a new cropping calendar was proposed. The current cropping calendar is proposed to be moved one month forward so that the ripening phase which is susceptible to excess rainfall will be move to a month where less amount of rain is expected. The results of this research will be communicated to the farmers of Pampanga once approved and examined by the concern government agencies.

Effect of Soybean-based Semen Extender on Goat Artificial Insemination (AI) Conception and Factors Determining Conception Rate

By

Anna Maria Lourdes S. Latonio, Excelsis M. Orden, Alma M. De Leon, Mari Joy M. Buenavista, Edilyn V. Lansangan, Jamal James D. Manlapig, Jairus Jesse M. Tubal, William James S. Viernes and Emil Joshua A. Dela Cruz

Abstract

One of the programs implemented by Isabela State University (ISU) and the Cagayan Valley Agricultural and Resources Research and Development (CVARRD) was the Philippine Council for Agriculture, Aquatic, and Natural Resources Research and Development (PCAARRD) funded regional project entitled **"**Enhancement of Artificial Insemination and Meat Processing Technologies Towards Production of Quality Slaughter Goats in Cagayan Valley". Completed in 2011, the project has two components namely: (1) Development of Improved Goat Semen Extenders and Artificial Insemination Delivery System in Region 2, and (2) Value-adding of Goat Meat Products through Processing and Packaging. The two components were examined separately in terms of outputs, outcomes and impacts.

This paper aims to present a portion of the assessment results on component 1, focused on the effect of using soybean-based extender on goats' conception and the factors that determine conception rate. Under component 1, the project produced a cheaper extender named SemEx. Conception rates of goats under AI was found to be comparable regardless of the type of extender used, indicating that soybean lecithin can be a potential alternative to egg yolk in terms of formulation, so that either type of extender can be used for processing semen and using it for AI.

Factors that determine conception rate were analyzed using multiple regression. The explanatory variables considered were number of years of adoption of AI technology, number of seminars attended, number of bucks during the project, type of extender used, farmer's knowledge on estrus, farmer's knowledge on estrus synchronization, farmer's knowledge of housing in goat raising, type of service provider, and province of origin. The a priori assumption of each explanatory variable relationship to conception rate was positive. Based on the results, the farmers' knowledge of the signs of a doe in estrus plays an important role in determining the right time for insemination, and farmers who had more years exposed to the technology had more goats having higher conception rate. Knowledge of estrus is the most important factor to success in conception.

Evaluation of the Registry System for Basic Sectors in Agriculture

By

Celia M. Reyes, Ph.D. and Reneli Ann B. Gloria

Abstract

There are many and varied government programs that target the agriculture and fisheries sector, especially the poor. For more efficient and streamlined program targeting, the Aquino administration has initiated the creation of the Registry System for Basic Sectors in Agriculture (RSBSA), a list of farmers, farm workers and fisherfolk in the 75 provinces of the country excluding ARMM and NCR. This is currently used by the Department of Budget and Management to target beneficiaries of the various government agencies implementing agricultural support programs, and as a basis for issuing allocated budgets for these programs. This paper finds that there are legitimate agricultural producers that are excluded from the list, leakages, difficulty of the registry to be linked with other government databases, and unclear operational definition of farmer. But despite its shortcomings, the authors find that the RSBSA is useful as a targeting tool, the list just needs to be validated and regularly updated.

Productivity Effects of Cross-border M&As: Evidence from Japan

By

John Lourenze Poquiz and Benedikt Heid, Dr. oec. publ.

Abstract

This study aims to determine if cross-border mergers and acquisitions (M&As), cause productivity gains for firms in Japan. Differences-in-differences strategy was combined with propensity score matching to determine the causal effect of foreign acquisitions on productivity. This study finds that cross-border acquisitions in Japan do improve firm productivity. These effects are observed a year after acquisition. The size of the productivity effect, however, is not the same across the two major industrial sectors (agriculture-industry and services). This study finds that the productivity effects of cross-border acquisitions are more pronounced for firms in the agriculture-industry sector as compared with firms under the services sector.

Durations of Trade in the Philippine Stock Market: An Application of the Markov Switching Multi-Fractal Duration (MSMD) Model

By

Jennifer E. Hinlo and Agustina Tan-Cruz

Abstract

This study examined the durations of trade in the Philippine Stock Market using the Markov Switching Multi-Fractal Duration (MSMD) Model using tick data from 20 frequently traded stocks in the Philippine Stock Market. Results revealed that higher duration results to lower trading intensity because of low information of traders about the stocks during the period. The lesser attention paid to the stock, the more likely that trade will not happen.

The higher trading intensity is a result of shorter trade durations, this means that the interval from one trading transaction to another is smaller. The higher the trading intensity implies higher price impact of trades and faster price adjustment to new trade-related information. Information flow affects intensities, but it does not trigger trading automatically because investors have limited attention, and they need to allocate attention to process all kinds of information before making a trading decision.

Determinants of Banking Profitability in the Philippines

By

Jayca Blanca G. Macasaquit and Jennifer E. Hinlo

Abstract

A stable banking industry is one of the main pillars of our financial security and this can be attributed to their increasing profits. In order to know how banks are effected by certain shocks, this study identified the determinants of banking profitability in the Philippines from 2008 to 2016 and estimated the long-run and short-run relationship of the determinants to banking profitability by banking group. Autoregressive Distribution Lag (ARDL) and Error Correction Model (ECM) was employed in the analysis. Results showed that among those 5 banking groups, Universal bank provided evidence for long run and short run relationships with its determinants. Generally, in the short run, bank efficiency, money supply and government securities have a positive and significant effect to banking profitability.

Stochastic Gradient Hamiltonian Monte Carlo on Bayesian Time Series Modeling

By

Al-Ahmadgaid B. Asaad and Joselito C. Magadia, Ph.D.

Abstract

The interest of the study is on modeling the Year-over-Year Gross Domestic Product (GDP) of the Philippines using Bayesian Autoregressive Distributed Lag (BADL), with a priori set to multivariate Gaussian distribution. The model inference is done using an MCMC algorithm proposed by Chen et al (2014), named Stochastic Gradient Hamiltonian Monte Carlo (SGHMC). The predictors used in modeling the economic growth are the following: Peso/US Dollar Exchange Rate (ERATE), Stock Price Index (SPI), Gross International Reserves (GIR), and Balance of Payments - Current Account (BOP). To evaluate the behavior of the SGHMC, three scenarios of the MCMC hyperparameters (leapfrog step size and iterations) were considered. This is done in comparison to other MCMC algorithms as well, namely: Metropolis-Hasting (MH) and Hamiltonian Monte Carlo (HMC). The markov chains in these three scenarios were assessed using Heidelberger-Welch's stationary test and Gelman-Rubin's convergence test. The results favored BADL-SGHMC over the BADL-MH and BADL-HMC in the out-of-sample dataset.

A Structural Change of Distributed Lag Model in Bayesian Perspective: Its Impact to Economics

By

Arvin Paul B. Sumobay

Abstract

When certain economic policy measures begin to take effect, economists are interested on when and how their effects will fully occur. Dependent variables often react to changes in one or more of the explanatory variables only after a lapse of time. This delayed reaction suggests the inclusion of lagged explanatory variables into the specification of the model, resulting in a dynamic model. One example of the said model is a linear distributed lagged model. Moreover, when modelling time-series data, parameters are assumed not to vary with time, but there are instances that model parameters also change after some specific time points. Hence, in this paper, the possible shifts in parameters of the distributed lag model, specifically the Koyck Scheme were determined.

Structural change for the model is analysed through the Bayesian paradigm, which is using the posterior distribution of the break point. Through simulation, the detection of the break point improved gradually when the variance is 1 as compared to when the variance is 2. For samples with sufficient size, the full change can be detected after one lag because of the nature of the model which includes lagged variable. This suggests that in the structure of the model, complete change occurred after one lag. The coverage probability consistently and efficiently captured the break point for all sample sizes.

On Hybridization of Time Series and Bayesian Regularization Neural Network Models

By

Jayson N. Payla and Bernadette F. Tubo, Ph.D.

Abstract

This study introduces the Bayesian Regularization Neural Network Model (BRNN) and the Multilayer Perceptron Neural Network Model (MLPNN) as hybridization methodologies to do Time Series (TS) models. BRNN is an excellent approximation to an ideal Artificial Neural Network in a way that it modifies the standard back-propagation neural network by a regularization step incorporating Bayesian statistics. The procedure is applied to model the Gross Domestic Product of the Philippines (GDP) which is a linear data for hybridization process via BRNN and MLPNN to unveil the comparability in the forecasting performance for short term and long term horizons. The final model of the GDP is ARIMA(1,1,1) X (1,1,1)4 – BRNN(4-2-1) with the Mean Absolute Percentage Error (MAPE) of 0.9941 for long term forecasting.

In general, the result of hybridization for linear models indicates that SARIMA and ARIMA are good when we want short term forecast while the hybrid MLPNN and hybrid BRNN are better if we want long term forecast.

Tracking Government Performance through StatDev

By

Wilma A. Guillen, Rosalinda M. Garcia, Gerald Junne L. Clariño, Michael Leon F. Taningco and Jocelyn F. Abrenica

Abstract

This paper presents the StatDev or Statistical Indicators on Philippine Development. StatDev is an instrument developed and maintained by the Philippine Statistics Authority to track the pace of progress in terms of the likelihood of achieving the end-of-plan target of the economic and social development goals set forth in the Philippine Development Plan (PDP). In essence, the StatDev is aligned to the PDP and corresponding results matrices of every government administration.

Using the indicators in the PDP 2017-2022 Results Matrices in the StatDev 2018 report, this paper presents the process flow, computational procedure and outputs, as well as the challenges encountered along the way. It is hoped that through this paper, the importance of the StatDev as a performance monitoring instrument can be communicated for a good appreciation by all program and project implementers from the government sector.

NCD Mobile Phone Survey in the Philippines

By

Agnes B. Segarra, MD, PHSAE, Theresa D. Timbang and Fe Sinson

Abstract

Non-communicable Diseases (NCDs) are the leading cause of death worldwide. According to the World Health Organization, NCDs contribute to 34% of all deaths in the Philippines. Efficient monitoring and surveillance are cornerstones to track the progress of NCD burden, related risk factors and interventions. The systemic monitoring of risk factors to generate accurate and timely data is essential for Philippines' ability to prioritize crucial resources and make sound policy decisions to address the growing NCD burden. With increasing access and use of mobile phones globally, opportunities to explore the feasibility of using mobile phone technology as an interim method to collect data and supplement household surveys.

The goal of the Philippines Mobile Phone Survey was to provide nationally representative estimates of indicators that can provide information on NCDs to help make programmatic recommendations to improve and enhance NCD prevention and response in the Philippines. The NCD Mobile Phone Survey included 18 core questions on the following topics: Demographics, Tobacco Use, Alcohol Use, Diet (Fruit, Vegetable and Salt Consumption), Diabetes and Hypertension.

Full scale data collection commenced on July 27, 2018. Data collection was deployed in a 3-phase approach; each took approximately a month. A total of 3,679 individuals completed or partially completed the survey using either short message service (SMS) or mobile web through the three major mobile network operators in the middle of August 10, 2018. The survey employed a two-phase sampling strategy. In the first stage, mobile phone numbers were generated via random digit dialing (RDD), using mobile phone prefixes for the major Mobile Network Operators. In the second phase respondents were stratified into age and sex strata. Completed interviews were defined as answering all survey questions, partial interviews were defined as answering at least one NCD question.

To achieve the 3,679 interviews, 977,957 possible mobile phone numbers were dialed. Due to the nature of the RDD sampling, it was expected that many of these mobile phone numbers were invalid or unregistered reflecting an overall response rate of 3.9%, with an interview rate of 97.1%. 56.8% of the sample were female and two-fifths (43.4%) reported that they were 18-29 years old (43.4%). To account for sample imbalances, the data was adjusted to the 2018 population census totals.

Tobacco use is one of the most important risk factors for NCDs. Overall, 19.4% of Filipino adults aged 18 years and older used some form of tobacco (30.1% among

men, and 8.8% among women). Men also reported higher rates of daily tobacco smoking compared to women (18.7% vs. 4.3% respectively).

Approximately, one-third of adult Filipinos consumed alcohol in the past 30 days (36.3%), with males reporting current alcohol consumption more frequently than females (51.9% vs. 20.8 respectively). Males had more than twice the rate of females of heavy drinking occasion. With regard to salt consumption, 61.9% of adult Filipinos always of often added salt in some form when cooking. For fruit and vegetable consumption, 91.6% of all adult Filipinos consumed less than five servings of fruit of vegetables per day. Overall, 15.7% indicated they were ever told they had raised blood glucose or diabetes (17.9% among men and 13.6% among women. Of those, 46.1% reported that they were currently on medication. Approximately a third of adult Filipinos 31.1% ever reported that their raised blood pressure of hypertension was diagnosed by a doctor or health professional.

Findings from this survey help provide a national baseline on selected NCD risk factors for Filipinos. Results will help inform the Department of Health as they advance efforts to improve and enhance NCD prevention and response strategies and draw the Philippines closer to achieving the Sustainable Development Goal of reducing premature mortality from NCDs by one third.

Smart Verbal Autopsy (SmartVA) in the Philippines

By

Theresa D. Timbang

Abstract

Mortality statistics are widely used for medical research, monitoring of public health, evaluating health interventions, planning and follow-up of health care. Health planning based on good quality mortality data helps decision-makers determine health priorities for prevention of premature-deaths. This helps the Government to target priority issues and makes efficient use of the available resources. The quality of the mortality statistics depends greatly on how the physician document the causes of death (CoD).

In the Philippines, it is compulsory for all deaths to have a CoD assigned to be registered. Deaths that occur in health facilities are certified by the attending physician. The majority of deaths in Philippines occur at home without any medical attention (community deaths), hence, do not have an accurate and reliable cause of death. In the case of a community death, municipal health officers (MHOs) assign and certify a probable CoD based on interviews with the family members of the deceased.

In order to improve the CoD for community deaths, “SmartVA” was considered by the Department of Health. SmartVA was originally developed by the Population Health Metrics Research Consortium and is now used in many countries. Given the unique situation in the country where all deaths are medically certified, SmartVA was further adopted by the University of Melbourne for use by physicians when no medical records on the decedent are available.

SmartVA is an internationally recognized and validated tool which uses a simplified structured questionnaire to interview the family members of the deceased, record the responses in computer and electronically determines from the responses the most probable CoD.

The SmartVA tool has been piloted in 69 municipalities in the country in three languages- Tagalog, Cebuano and Ilongo. The pilot was conducted and funded by the Bloomberg Philanthropies and the Government of Australia. The pilot of SmartVA was carried out according to set protocol from July 2017 to June 2018. Physicians and IT personnel from the pilot areas were trained in SmartVA and medical certification of cause of death and SmartVA technology. A total of 126 physicians in the country have been trained in using SmartVA, more than 90 MHOs have used the tool regularly to assist them in diagnosing what was the most probable CoD.

Overall, physicians used the SmartVA diagnosis in 65% of the cases, in the remaining 35% they either gave a more specific CoDs after having completed the VA or disagreed and selected another cause.

The pilot study reveals that SmartVA is culturally acceptable by both doctors and families of the deceased. SmartVA was integrated into the work flow of the MHO and as part of the CRVS system without major costs. It is a useful tool for doctors to help them determine the most probable CoD particularly in cases where there are hardly any medical records. SmartVA eliminates inter-doctor variability by always using the same standard questions and methods for all deaths. Comparisons to other sources of CoD data (PSA) confirmed that the cause specific mortality fractions produced by SmartVA for the VA areas were comparable and produced fully reliable data for policy.

So… You Want to be a Data Scientist?

By

Lisa Grace S. Bersales, Ph.D.

Abstract

The changing data landscape has created many career opportunities to statisticians. The data changing landscape is brought about by new technology, especially the digital; recognition of empirical-based decision-making; global aspirations especially the Sustainable Development Goals; a long-term country vision in Ambisyon Natin 2040; open data; new sources of data, especially big data. These give the areas for career opportunities which include both the traditional as well as the new. The paper shall discuss opportunities in all sectors - in public and in private; in industry and in academia/research; in various sectors. The exciting but challenging area in data science… and there is a dearth of data scientists. The paper shall zero in on a discussion of academic programs and qualities that provide good foundation towards a career in data science.

Comparing Item Response Theory Subscoring Approaches: An Application to Senior High School Statistics and Probability Achievement Test

By

Armi S. Lantano and Kevin Carl P. Santos, Ph.D.

Abstract

Subscores or subtest scores are usually reported to complement the overall ability estimates by providing diagnostics information on students' strengths and weaknesses in the different subdomains of the construct being measured. However, estimating subscores based on short tests can result to unreliable scores, and consequently, may not provide additional information about the construct other than that provided by the overall ability estimate. Hence, this study explores four subscoring methods, namely: multidimensional scoring (MS), augmented scoring (AS), higher order item response model scoring (HO), and objective performance index scoring (OPI) in estimating abilities by overall and content areas of the actual examinees of K to 12 Achievement Test for Grade 11/12 in Statistics and Probability, a test developed by the Center for Educational Measurement, Inc. (CEM). The ability estimates and the corresponding proportion correct for each examinee on the content areas are estimated using the expected a posteriori method and four subscoring methods. In the absence of the true ability and proportion correct, summary statistics based on moments and quantiles were computed and compared. Results derived from the most fitted method describe students' performance profile in the Statistics and Probability test.

Comparison of Three Different Bootstrap Techniques to Estimate the Average Household Food Expenditures

By

Czaryda Palaganas and Demi Aira Dimatera

Abstract

This study explored bootstrap estimation with three different methods of selecting the original sample to estimate the average household food expenditures based on FIES. The three different methods are (a) SRSWOR, (b) systematic sampling and (c) PPSWR. Resampling yields superior estimates compared to the estimates without resampling. 'Basic' bootstrap has better accuracy and precision for 1% sampling rate and PPSWR with resampling for 5% and 10% sampling rate. But at regional level, systematic resampling estimates was superior than PPSWR.

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An Analysis of Clinical Data: Illustrating Equivalence of Unidimensional Item Response Theory and Cognitive Diagnosis Models

By

Kevin Carl P. Santos, Ph.D. and Jimmy de la Torre

Abstract

Cognitive diagnosis models (CDMs) have been become popular due to the diagnostic feedback they provide. For this reason, its emergence brought about shift on psychometric paradigm from merely determining subjects' latent traits to generating subjects' multidimensional profiles of finegrained attributes. However, some practitioners analyze the same educational or psychological assessment using both unidimensional item response theory (UIRT) models and CDMs at the same time. With certain conditions imposed, the higher order generalized deterministic inputs, noisy "and" gate (HO-GDINA) model has been reformulated to express its success probability as a function of the latent trait. Based on this model reformulation, this study provides a framework on relating the two classes of psychometric models, as well as boundaries when this can be done. To illustrate, responses to the Dutch version of the Millon Clinical Multiaxial Inventory-III are analyzed using the two psychometric models. It is found that the latent trait estimates obtained from fitted HO-GDINA and UIRT models are highly correlated.

Lung Cancer Stage Classification Using Random Forest and Artificial Neural Network

By

Stanley T. Dalagan, Ella Joyce S. Paragas, Aileen Joy V. Ramos and Clarissa Jewel B. Alota

Abstract

Lung cancer is considered the most common and the deadliest cancer type. The survival of a lung cancer patient is affected by a variety of factors including lung cancer stage or the measure of the spread of cancer within the body. To analyze the occurrence of the four lung cancer stages, Random Forest (RF) and Artificial Neural Network (ANN) were used to develop classification models. The predictor variables used are age at diagnosis, average number of cigarettes consumed per day, number of years smoked/ smoking, primary diagnosis, site of origin, gender, vital status, and year of birth. Both methods can be used to predict values of an ordinal dependent variable. From the model feature selection, RF with 100 decision trees with 2 factors per tree (or mtry) was used. The final ANN model for lung tumor stage classification was a 17-1-4 network. The ANN model was found to be better at classifying lung cancer stage than the RF model based on accuracy rate and Kappa statistic.

Risk Factors of Breast Cancer Among Women: A Meta Analysis

By

Rene N. Argenal, Margie L. Baterna, Christine F. Peña, Jovita N. Ravina and Marian Concepcion R. Sionzon

Abstract

This paper examined the risk factors of breast cancer among women using meta-analyses. A review of past studies was made to determine the characteristics of researches on risk factors of breast cancer among women where most victims came from the Philippines. Of the 21 articles examined, only five were selected. Four of the studies were from the Philippines and another one was included because it investigated the most number of variables of the intended study. Of the five studies, four (4) made use of case-control design and one (1) was cross-sectional. The sample sizes vary from 480 to 10953 women. The studies identified 10 risks factors and 7 of these were investigated in at least two researches.

Level of Knowledge and Attitude Towards Diabetes Mellitus (Type II) Among Selected Business Process Outsourcing (BPOs) Employees in Makati

By

John Christian Espinola, Alora De Guzman, Khali Junatas, Julius Pedro, Mark Anthony Sio, Giulian Tabanao, Jhames Santos, Nicole Labine and Christina Lugue

Abstract

The Department of Health desires to promote good health and wellbeing by addressing employees. Increasing number of patients with diabetes who work in call centers most of them are incapacitated by obesity and other contrasting lifestyle-related issues. This Comparative-Correlation study aims to test the level of knowledge and attitude towards diabetes among selected BPO Companies. Using Stratified sampling, the researchers gathered their 334 respondents from Makati. Data gathered from the adapted survey-questionnaire of Garcia (2001) and Evans (2010) were treated using ANOVA, Chi-Square and Pearson Correlation. Their level of knowledge is *approaching proficiency* (50%) and was also found out that there is a significant difference in their responses based on their age (p-value=0.41). Their attitude towards diabetes is *moderately positive* (77.8%) and shows that there is a significant difference based on their daily work hours (p-value=.012) and employment status (p-value=.006). The two variables are significantly correlated categorically (x^2=22.634) and has *significant low positive correlation* (0.01 level of significance, r=.270). These proves that they are at risk of having diabetes but with the strong desire of the employers and the government to do information dissemination, massive campaign, and policy making, there is a hope to minimize the cases.

The Sustainable Development Goals (SDGs): Three Years On, Where Do We Stand?

By

Wilma A. Guillen, Mechelle M. Viernes, Frances Anne A. Castillo, Dustin Adriel V. Sulat and John Paul C. Delos Santos

Abstract

The Sustainable Development Goals (SDGs), also known as Global Goals, build on the success of the Millennium Development Goals (MDGs). The SDGs have set the 2030 agenda to transform our world by tackling multiple challenges humankind is facing to ensure well-being, economic prosperity, and environmental protection, which UN Member states, including the Philippines, have pledged to engage. In contrast to conventional development agendas focusing on a restricted set of dimensions, affix to these SDGs is the mantra of “leaving no one behind”, which provides a holistic and multidimensional view on development. This includes 17 goals, 169 targets and 244 indicators (232 if unique indicators) that foreseen to transform our world to be sustainably developed if achieved by 2030.

In 2016, the Philippines conducted several national consultations and assessments of indicators to assess indicators relevant at the national context. This resulted to 102 global indicators, 28 proxy indicators and 25 supplemental indicators to be monitored by Philippine Statistics Authority (PSA), as official repository of SDG indicators. Three years after the approval of the global SDG indicators, the Philippines brought forward its contribution to the SDG monitoring on various levels; globally and regionally, by driving the alignment of the SDG monitoring policies across countries; and even national and local levels through the SDG Indicators mapping initiative supported by the UN Statistics Division. The Philippine Statistical System is currently advancing the 2030 Agenda monitoring beyond the baseline and latest data updating, but more importantly, on the identification of 2030 national numerical values/target value for the led by the National Economic Development Authority (NEDA), in collaboration with Philippine Institute for Development Studies (PIDS).

As we implement the Sustainable Development Goals (SDGs) monitoring, we need a reliable evidence base and a complete picture of progress towards the SDGs at national and sub-national level. For this purpose, this paper will present the picture of progress in the implementation of the Sustainable Development Goals (SDGs).

Despite major gaps in data and indicators, the paper identifies clear patterns of where the probability of achieving the target is high, medium or low; number of years behind (time lag) or number of years ahead (time lead) the path of achieving the goals; targets where acceleration is needed to meet the SDGs by 2030 and ones where the country is moving in the wrong direction. This will be an invaluable resource for all stakeholders involved in the prioritisation, planning and implementation of the SDGs

Challenges and Opportunities in Meeting the Sustainable Development Goals in the Philippines

By

Celia M. Reyes, Ph.D., Jose Ramon G. Albert, Ph.D., Aubrey D. Tabuga, Ph.D., Arkin A. Arboneda, Jana Flor V. Vizmanos and Carlos C. Cabaero

Abstract

The Philippines is one of the United Nations member states that has committed to achieving the 17 Sustainable Development Goals (SDGs) and their 169 targets by 2030. Based on available data from national surveys and administrative data of government agencies, this paper aims to examine where the Philippines stand with respect to the targets and goals of the SDGs. Baseline data and recent historical data on SDG indicators were considered to assess the progress of the Philippines, and to identify statistical challenges and opportunities, such as data availability and granularity, in monitoring progress towards the achievement of the SDGs.

Towards the Development of Sustainable Tourism Indicators for the Philippines

By

Lisa Grace S. Bersales, Ph.D., Vivian R. Ilarina, John Lourenze S. Poquiz and Michelle Fatima T. Caranay

Abstract

While tourism as an economic activity contributes to the growth of an economy, it also causes “irreversible damage to the environment” which may affect tourism in an area. In order to establish tourism as sustainable source of growth, policy makers should be able examine the negative externalities resulting from tourism activities. Moreover, there should also be some metric for the assessment of interventions aimed at mitigating the adverse effects of tourism on environment. This study attempts to establish with a provisional methodology for the compilation of indicators measuring some of the impacts Philippine tourism activities has had on the environment. The estimation strategy we employed involves the use of the Philippine Input-Output tables and the Philippine Tourism Satellite Accounts (PTSA) in generating indicators for the environmental impacts of tourism. We were able to generate indicators on the energy use and water use for each of the tourism industries highlighted in the PTSA. The hope is that this study would serve as a first step towards the generation of other indicators that are meant to guide planners in crafting and evaluating policies for sustainable tourism.

Participation in Tourism: Cases on Community-Based Tourism (CBT) in the Philippines

By

Eylla Gutierrez and John Paolo R. Rivera, Ph.D.

Abstract

Tourism continues to grow as a significant industry generating economic growth and development in the Philippines. Associated with its success is the participation of communities surrounding tourist destinations. As a result, community-based tourism (CBT) initiatives have emerged to account for community's increasing participation in tourism development. While gaining increased popularity, understanding how local community participation is promoted in such initiatives has become an imperative. It has become necessary to investigate whether CBT has achieved its objective of addressing the inequitable distribution of benefits and negative impacts of tourism development in the country. This study will specifically explore the cases of community participation in El Nido Resorts, Bojo Aloguinsan Ecotourism Association, and Kawit Community-Based Heritage Tourism to understand how local community participation is incorporated in tourism destination development in the Philippines. The findings of this study will pose implications in the development of community-based tourism initiatives and programs in the Philippines and other developing economies.

Cost Valuation of Water Provisioning Services of Mt. Matutum and its Surrounding Areas as Basis for Establishing Payment for Ecosystems Services (PES) Arrangements with Local Water Utilities

By

Ernesto S. Guiang and Dieldre S. Harder

Abstract

The Mount Matutum Protected Landscape has four major watersheds that supply the water requirements of the municipalities of Tupi, Tampakan and Polomolok in South Cotabato, Malungon in Sarangani Province and part of General Santos City. However, majority of these watersheds are in critical condition with the remaining natural forest cover currently below ten percent. This adversely affects the available water supply necessary to meet the growing demand for water in the region.

To address this concern, Protect Wildlife set up a novel process for establishing Payments for Ecosystem Services using a two-pronged approach for entering into voluntary negotiations with local water utilities. First is a cost based approach that values the total discounted cost per hectare to protect, rehabilitate and manage the degraded watersheds. Second is a cost revenue analysis (CRA) to assess the profitability of the operations of local water utilities and their capacity to contribute part of their profit to PES.

Results indicate that the total discounted cost per hectare per year are Php6,406 (Buayan), Php10,705 (Kipalbig), Php9,409 (Silway) and Php10,799 (Taplan). This translates to a cost per cubic meter ranging from Php0.39/cu.m to Php1.15/cu.m. Base on their profitability, local water utilities signified how much they are able and willing to contribute for PES to finance watershed conservation.

Estimating Blue Carbon of the Philippines: Status, Challenges and Opportunities

By

Ariel C. Blanco, Alvin Baloloy, Joy Marie Jamilla, Raymund Sta. Ana, Christian Candido, Gay Amabelle Go, Ayin Tamondong, Charmaine Cruz, Reginald Argamosa, Kazuo Nadaoka, Kazuyo Hirose, Takashi Nakamura, Suwa Rempei, Rene Rollon, Ma. Lourdes McGlone, Severino Salmo, Miguel D. Fortes, Regina Angeline Angeles and Jose Alan Castillo

Abstract

The estimation of carbon sequestered and stored by blue carbon ecosystems (e.g., mangroves, seagrasses) in the Philippines is crucial in placing due recognition to the roles of these ecosystems in climate change adaptation and mitigation. While global datasets on mangrove canopy heights, aboveground biomass (AGB), and mangrove forest soil organic carbon (SOC) are available, these are considered inaccurate. The situation is much worse in the case of seagrass as no reliable nationwide maps of seagrass are available. Advances in remote sensing of mangrove forest and seagrass meadows using satellites and unmanned aerial systems have been made but mainly limited to above-ground biomass (AGB). To a certain degree of accuracy, below-ground biomass (BGB) estimate can be made from allometric equations, which are also typically used for AGB estimation. These can be further improved with the synergistic use of radar, optical, and LiDAR data and utilization of spatio-temporal data analysis and even geosimulation. The use of machine learning (ML) algorithms for mapping and estimation is promising as demonstrated by previous studies. The ML analysis of core data together with a range of environmental variables provided SOC estimates for every cell location. Such studies demonstrated the value of spatio-temporal analysis of previous data to determine the potential carbon presently stored in the soils by considering potential gains and losses over time due to mangrove growth and disturbances, among other factors. In order to provide more SOC measurements, the use of field and laboratory spectroscopy for estimating soil/sediment carbon content directly from core sample is being explored. As the estimation of blue carbon in the Philippine is an enormous task, citizens and the blue carbon network must be capacitated to provide data and information on mangroves and seagrasses.

The Socioeconomic Assessment and Monitoring System (SEAMS): A Comprehensive and Easily Accessible Baseline Socioeconomic Database for Effective Protected Area Management in the Philippines

By

Noela C. Lasmarias and Joyce Espeleta

Abstract

Effective and efficient protected area management in the Philippines requires not only good biophysical information, but also good and easily accessible socioeconomic information specific to a protected area. Understanding the social, economic and cultural drivers of the failures or successes in PA management is crucial in ensuring better targeted and specific strategies, and in achieving outcomes. In many cases, however, biophysical, socioeconomic, and cultural information are absent or too dated to guide the management plans and strategies. Where data are collected, the processing and analysis are often minimal and mainly linked to reporting compliance with the central office. A database is also often absent. When surveys are conducted by partner organizations, the electronic databases are often inaccessible to the PA managers. Recognizing the problem, the Socioeconomic Assessment and Monitoring System (SEAMS) was designed for the DENR-Biodiversity Management Bureau (BMB) to provide the PA and BMB with survey-based database that uses MS Excel in the encoding and processing of information. The system integrates the existing Survey and Registration of Protected Area Occupants (SRPAO) and its instrument for assessing and monitoring of protected areas. It improved the data collection instrument by expanding its scope and content to managers with a more comprehensive information on the characteristics of the protected area. The system provides information on population of tenured and untenured occupants, their socioeconomic and cultural profile, resource utilization, and institutional arrangements (formal and informal) within the protected area and its adjacent sites. Moreover, the information from SEAMS enables analysis of threats and where they are coming from. It also allows estimation of economic rents to analyze the economic drivers and pressures. With SEAMS, the database thus enables more comprehensive analysis of the PA and informs PA managers to develop and implement better targeted strategies, and monitor outcomes.

Bayesian Estimation of the GJR-GARCH (p, q) Model

By

Arnulfo P. Supe, Ph.D. and Resa Mae R. Sangco

Abstract

In many financial time series data, the presence of volatility causes the variance to be non-constant. Volatility is the rate at which the price of a security increases or decreases. Many models were developed and extended regarding volatility models. This paper used the model introduced by Glosten, Jagannathan and Runkle (1993) which allows the positive and negative shocks to have different impact in the volatilities- the GJR-GARCH model.

This derives the posterior distribution of the GJR-GARCH (p, q) model using the Bayesian approach. Both the student-t and normal distribution are used as prior error distributions and the Markov chain Monte Carlo (MCMC) method, specifically the Metropolis-Hastings algorithm is used in estimating the parameters of the model. The performance of the Bayesian estimates of the GJR-GARCH (p, q) model with student-t error distribution is compared with the GJR-GARCH (p, q) model with normal error distribution in simulation studies. Furthermore, the classical Maximum Likelihood Estimators (MLE) is compared to the Bayesian estimators of the GJR-GARCH (p, q) model in terms of Mean Squared Error (MSE). Simulation study shows that Bayesian estimation of the GJR-GARCH (p, q) model with student-t error distribution and normal error distribution is more efficient than the classical Maximum Likelihood estimation. It shows that the assumption of student-t error distribution performs better than the normal error distribution.

Bayesian Estimation of A-PARCH Model: An Application to Jollibee Food Corporation Stock Market

By

Shane Marigold L. Oliveros and Arnulfo P. Supe, Ph.D.

Abstract

This study derives the posterior densities and computes the estimates of the parameters of the Asymmetric Power Autoregressive Conditional Heteroscedasticity (A-PARCH(p,q)) model using the Bayesian approach. The Markov Chain Monte Carlo (MCMC) method with Metropolis-Hastings (M-H) algorithm is used in estimating the parameters of the model. The procedure is applied to model the returns of Jollibee Food Corporation (JFC) stock market. The best fit model for the JFC stock market returns is ARMA (1,1) – A-PARCH (1,1) model with Student's t-distributed innovations with a Mean Square Error (MSE) value of 1.75107.

Forecasting Extreme Economic Misery Indices

By

Peter Julian Cayton, Ph.D.

Abstract

A methodology for forecasting extreme economic misery is proposed. The economic misery index is defined as the sum of the inflation rate, unemployment rate, and underemployment rate. The methodology involves the following steps. First, a univariate autoregressive integrated moving average (ARIMA) model is fit for each of the components of the economic misery and the index itself. Second, we estimate the appropriate adjustments to the forecasts of the components and the whole through an optimal forecast reconciliation methodology. Third, we produce bootstrap samples of the forecasts by residual-based bootstrapping based on the ARIMA model of the first step and repeating the first second step. Fourth, we estimate the extreme level of economic misery, called the Misery-at-Risk (MaR) based on the bootstrap distribution of the forecasts. We demonstrate the methodology on the Philippine context and unlock new insights in economic historical analysis. The methodology opens up research in early-warning systems for economic statistics beyond GDP and inflation alone.

Linkage Between Stock and Commodity Markets' Volatility in the Philippines

By

Demi Aira Daradal Dimatera

Abstract

In this paper, we will contribute to the emerging empirical literature dealing with the relationship between commodity and stock markets. Our sample consists of commodities covering various sectors over the period. Relying on a large panel of raw materials (energy, metals, agricultural, food, ...) allows us to study whether commodities constitute an homogenous asset class with regard to their links with stock markets, and whether the crisis has engendered a financialization of commodity markets.

For ASEAN countries, gold and crude oil are the main representatives of the large commodity markets, thus it is of fundamental practical significance to analyze how volatility and shocks are transmitted among these markets. An EGARCH and MEGARCH models were used to examine the spillover effect of oil and gold volatility. The results show that the impact of oil price on the mean equation of all stock market index are positive and significant; indicating that any increase in the crude oil price will increase the return of market index.

Mapping of Vector-Borne Disease Hotspots in the Philippines: Constructing a Vector-Borne Disease Vulnerability Index Using AHP

By

Mark Jay P. Dating

Abstract

Scientists and involved sectors are continuously looking for solutions to combat diseases and conditions that curtails human survival. For a developing country like the Philippines, the key is to detect onset of a disease during its early stage to halt mortality, spread and its impending effect to economy. In line with this, the study aimed to determine the exposure of Philippine provinces to factors that make them vulnerable to vector-borne diseases by constructing a composite vector-borne disease vulnerability index (VBDVI) using official statistics published online. Using Analytic Hierarchy Process (AHP), VBDVI was constructed by incorporating various indicators grouped into six dimensions. After indices were calibrated, a series of uncertainty analyses were performed to assess validity.

Lists of vulnerable provinces differed across dimensions but Maguindanao appeared to be the most vulnerable while Batanes was the least vulnerable. Results of the study have shown clustering of vulnerable provinces. A notable trend that can be deduced from the results was the fact that most vulnerable provinces were in Mindanao making the geographical area a potential hotspot of vector-borne diseases.

Results of uncertainty or sensitivity analyses showed potential strengths and weaknesses that challenged the validity of VBDVI. Nonetheless, results showed that VBDVI appeared useful in classifying most vulnerable provinces. Statistical maps comparing actual rates and VBDVI presented concordance among provinces in Mindanao. Moreover, outputs showed acceptable resemblance of VBDVI to actual rates for percent errors were minimal ranging from 1.52% to 3.15% only. Though VBDVI was not constructed to directly predict outbreaks, it can give us comprehensive idea in identifying locations that needs practical and apt support and ultimately negate emerging threats of vector-borne diseases.

Assessment of a Proposed BMI Formula in Predicting Body Fat Percentage Among Filipino Young Adults

By

Romaia Elaiza N. Abrugar, Jianna Gayle A. Almoro, Kristelle Diane A. Batin, JT Martin S. Cabrera, Kryzia C. Dela Merced, Jojomaku E. Higa, Trizha T. Maaño, Francis P. Quitoriano, Emer M. Rondilla II, Darlene Lybelle D. Ternida, Jasmine Lorraine G. Vitug and Michael Q. Van Haute

Abstract

The body mass index (BMI), while routinely used in evaluating adiposity, cannot distinguish between fat and lean body mass, and is influenced by various factors like age, sex, ethnicity, and activity level. Consequently, BMI can potentially misclassify weight status among the athletic, physically active, tall- and short-statured, whose lean-to-fat ratios vary considerably from average individuals. In this cross-sectional study, we assessed the performance of a modified BMI formula ($1.3[kg]/m^{2.5}$, proposed by Oxford professor Lloyd Trefethen) against the traditional Quetelet formula (kg/m^2) in predicting body fat percentage (%BF) measured using bioelectric impedance analysis (BIA), and in diagnosing overweight/obesity among a sample of Filipino young adults. A total of 190 participants (74 males, 116 females) were included in the analysis, on which 1000 bootstrap replications were subsequently performed. Agreement between the two BMIs is significantly higher among males (κ=0.9306 vs κ=0.7139). For both sexes, the traditional BMI quadratic full model demonstrated the highest adjusted R^2 values (males: 0.6733; females: 0.8262), and the lowest AIC and BIC values. Similarly, the traditional BMI had consistently higher measures of diagnostic accuracy and AuROCs (males: 0.9221 vs 0.9147; females: 0.9517 vs 0.9430), albeit nonsignificant. In conclusion, both BMI_Q and BMI_M are comparable, but with BMI_Q performing non-significantly better than BMI_M in predicting %BF and in discriminating between normal and overweight-obese weight classifications.

Spatial Clusters of Under-five Malnutrition in the Province of Marinduque

By

Novee Lor C. Leyso and Maylin C. Palatino

Abstract

As underweight among children under-five years old continues to be a major public health concern along with the increasing overweight, Philippines is now facing the problem known as the double burden of malnutrition. Local spatial cluster detection provides a spatial perspective in understanding this phenomenon, specifically in which areas the double burden of malnutrition occurs, which eventually can be used for focused targeting of interventions. This study aimed to determine and evaluate spatial clusters of different forms of under-five malnutrition across the province at the individual level using household location. Data from a province-wide household-based census conducted in 2014–2016 were utilized. Weight-for-age z-score was used to categorize the malnourished children into severely underweight, moderately underweight, and overweight. The Kulldorff's elliptical spatial scan statistic using the multinomial model was used to locate clusters with high or low risk of different forms of malnutrition, while controlling for age and membership to 4Ps. Three significant clusters across municipalities of Boac, Buenavista, and Gasan were found to have high-risk of over and undernutrition simultaneously, indicating existence of double burden of malnutrition within these communities. Therefore, specific programs and interventions should be focused on the identified high-risk clusters to maximize resources.

Does a DNA Barcoding Gap Exist in Bioactive Marine Bacteria? Evidence from Analyses of 16S rRNA Gene Sequence Data of Pigmented Pseudoalteromonads

By

Arizaldo E. Castro and Ian Kendrich C. Fontanilla, Ph.D.

Abstract

16S rRNA gene sequences have been extensively used in assigning taxonomic identities and in elucidating phylogenetic relationships among prokaryotes. One bacterial genus that is largely identified using 16S rRNA gene sequence data is the Pseudoalteromonas. To date, there is limited to no published evidence supporting the certainty of using 16S rRNA gene sequence data in identifying pseudoalteromonads and describing phylogenetic relationships within the group. In this in silico study, the suitability of using 16S rRNA gene sequences in taxonomic and phylogenetic resolution within Pseudoalteromonas was examined. 195 partial 16S rRNA gene sequence data were analyzed for difference in intraspecific and interspecific genetic distances and for the presence of a DNA barcoding gap. Gene trees were also constructed using Maximum Likelihood and Maximum Parsimony approaches. Using the uncorrected and Kimura-2-parameter (K2P)-corrected pairwise distances, it was found that interspecific distances were 3.5 to 4 times greater than intraspecific distances and there is an absence of a DNA barcoding gap. In addition, the constructed ML and MP gene trees supported the monophyly of 8 out of the 13 species of pigmented pseudoalteromonads. These findings imply that 16S rRNA gene sequence divergence among the members of pigmented pseudoalteromonads are small and there is a need for caution in using 16S rRNA gene sequence data alone when identifying putative marine pigmented Pseudoalteromonas species. In contexts where resources are not a limiting factor, Multi-Locus Sequence Analysis (MLSA), which concatenates gene sequences from multiple conserved genes, is a more robust approach than single-gene molecular identification and phylogeny reconstruction.

Open Data in the Academic Sector

By

John Paul Vergara

Open Data Trends in the Private Sector

By

Stephanie Sy

Open Data Portal

By

Gideon E. Ponio

Towards Institutionalizing Open Data Processes

By

Christopher Kuzhuppilly

Developing a Framework for Monthly Indicator of Economic Growth in the Philippines: A Guide for Better Policies

By

Florande S. Polistico, Faith Hyacinth M. Balisacan, Christian Patrick E. Vinculado, Kristy Ann G. Meguiso, Chelo M. Nuyda, Jomar S. Garachico and Mary Grace E. Nuñez

Abstract

The System of National Accounts (SNA) provides a framework in the compilation of economic accounts, with Gross Domestic Product (GDP) as one of the derived key economic quarterly indicators. GDP is used in the formulation of evidence-based policies and serves as a guide for private institutions and other stakeholders in their decision-making.

With the rapid-changing of the global economic landscape, there has been a growing demand for more relevant and timely indicators of economic activity (i.e. High Frequency Indicators or HFIs). Clamor for HFIs has been recognized globally as in the case of the International Monetary Fund (IMF) Data for Decision (D4D) Fund wherein one of the objectives is to address this concern of the international statistical community, including the Philippines.

This paper explores the development of a framework to compile HFIs of economic activity in the Philippines. It also presents data and data sources of indicators, and their linkages to existing economic accounts, particularly the quarterly Gross Value Added (GVA) by industries and the GDP. Moreover, the results of this exercise are also presented highlighting the monthly GVAs by industry and monthly GDP. Lastly, issues and challenges are identified during the compilation process and the way forward are presented.

Visualizing Official Statistics Using Power BI

By

Von Jeric F. Adona and Candido J. Astrologo, Jr.

Abstract

Statistics produced and disseminated by government agencies or international organizations are usually referred to as official statistics. Official statistics provide the government, the private sector and the general public with information on major areas of a citizen's lives such as status of employment, education, health, financial status, and social development for policy and decision making.

Official statistics result from the collection and processing of data with due consideration of statistical standards which make them fit for purpose or of quality. However, dissemination of official statistics, specially visualization of official statistics, is not given the same importance as with other statistical processes.

This paper will show the effectiveness of using information graphic design to visualize official statistics. Specifically, this paper will show examples of interactive and dynamic visualization of official statistics using Microsoft Power BI.

Location-based Sample Survey and Census Data Collection Using Modern GIS Platform

By

Florante C. Varona

Abstract

This paper aims to introduce map-based or location-based conduct of sample survey and census data collection using modern GIS Platform. This modern data collection approach will facilitate the integration of statistical information from surveys and censuses and the geospatial information to produce richer and meaningful insights and data analysis through the use of interactive dynamic maps and intelligent data visualization.

This paper attempts to present methods and procedures in conducting the map-based survey approach using prototype from the census operation workflow intended specifically for the future conduct of 2020 Census of Population and Housing (CPH) and the 2022 Census of Agriculture and Fisheries (CAF) and other periodic sample surveys regularly conducted by the Philippine Statistics Authority (PSA). With the availability of digitized census maps and the on-going conduct of geo-tagging of buildings nationwide to develop digital building footprints, the possibility of using this vector information as point in the digitized map that represent building can be used to develop procedures that would substantially link the geo-tagged buildings to the survey/census enumeration units (i.e., housing unit, household, and individual). Generally, the process generates sampling unit information that contains both geospatial information (i.e., x and y coordinates) and survey/census data. To illustrate the methods and procedures of map-based data collection, this paper will use results and findings from the series of pretesting, mini-pilot census and pilot census conducted for the 2020 Census of Population and Housing (CPH). While the map-based data collection is intended to collect household and person level data, no individual information but only statistical summaries and aggregation will be released to the general public to ensure compliance with the data privacy act.

The map-based data collection using modern GIS technology will considerably improve the statistical business processes of the Philippine Statistics Authority (PSA). The improvement will be realised in terms of quality and accuracy of survey/census results by addressing non-sampling error such as non-coverage and over-coverage. This can be done using real time GIS-based progress monitoring dashboard for supervisors for the early detection of coverage gaps and subsequently early field intervention to mitigate coverage problems. The timely release of survey/census results can be assured using the technology since data processing is already integrated in the technology-aided data collection using tablet device or Computer-Assisted Personal Interview (CAPI) system.

Enhancing the Compilation of Economic Indices in the Philippines: From Quarterly Economic Indices (QEI) to Monthly Economic Indices (MEI)

By

Florande S. Polistico, Aaron Paolo B. Uy, Jenny Lou Z. De las Alas, Kristy Ann G. Meguiso, Chelo M. Nuyda, and Juna Alyanna F. Grimaldo

Abstract

Economic indices are set of indicators developed to guide the users for policy-making, monitoring and analysis of the current economic situation. These indices also point out the change of direction in the performance of different industries and identifying trend of the variables in the indices across industries over time.

The Philippine Statistics Authority (PSA) compiles the Quarterly Economic Indices (QEI) on gross revenue, employment and compensation of various industries of the economy. Data used in the estimation are culled from the Quarterly Survey of the Philippine Business and Industry (QSPBI) of the PSA supplemented by the data from the National Accounts of the Philippines (NAP). While the current economic indices are published quarterly, the set of indicators used in the quarterly estimation are also available monthly. This could be used in generating monthly economic indices that will provide an advanced signal to the policy-makers and stakeholders on the current economic behavior and trends.

This paper aims to evaluate the rationale of having monthly economic indices as compared with the existing quarterly indices. Data and data sources, results and analysis of the relationships with other economic indicators particularly, monthly indices on revenue, employment and compensation are also presented.

Tutorial Program and Mathematics Performance of College Students

By

Jocell D. Calma and Aiza D. Villavicencio

Abstract

The study sought to determine the effectiveness of the free Mathematics tutorial program and its relationship to major examinations of college students. The tutorial program of the Mathematics Society (MathSoc) and Math faculty members under the BS in Mathematics program is an extension activity of the said program at Pampanga State Agricultural University. It is implemented semesterly in preparation for both midterm and final examinations on selected Mathematics subjects such as College Algebra, Plane Trigonometry and Calculus. A pre-test on the said math subjects was administered to students who voluntarily participated in the program before the tutorial. MathSoc officers were the tutors guided by the Mathematics faculty members. Subsequently, the same test was answered by the students as their post-test. Using the descriptive-inferential methods of research, the results showed that the pre-test performance of students is significantly different to the post-test across all the free tutorial programs conducted from 2014 to 2018. Moreover, the tutorial performance and the major examination performance of students were significantly related. Thus, the free tutorial program is effective for students who participated in the program. The findings of the study suggest the continuation of the tutorial program with wider dissemination for the increase of participants.

The Internship Performance of BSHRM Students of Apayao State College - Conner Campus A.Y. 2016 – 2017

By

Leandro B. Alla and Dan Paul T. Galande

Abstract

This study assessed the Internship Performance of BSHRM Students of Apayao State College- Conner Campus, A.Y. 2016 – 2017. There were nineteen (19) BSHRM interns who served as respondents. The researchers used the descriptive method of research. Results of the study revealed that the interns were assigned in various areas like front office, dining area, food and beverage, housekeeping, rooms and kitchen. Only three (3) respondents were assigned in both hotel and restaurant. The supervisors rated the interns “outstanding” in terms of their/ quality of work, quantity of work, dependability, diligence, judgment, initiative, cooperation, human relations, punctuality and attendance; while “very satisfactory” along job knowledge. More than half of the interns were rated “Outstanding”. Only three (3) respondents were rated “fair”. The most common problems encountered by the interns were: financial problems, communication problems and social interactions. It is recommended that the College should continue to strengthen the BSHRM- OJT program especially in job content and the BSHRM department should provide more trainings related to the program, exposure trips of the students in hotels and restaurants to strengthen their competencies and another related research should be conducted to determine the responsiveness needed against the demand of the industry.

Students Use of Social Media: Its Relationship to Academic Performance and Technology Ethics Decisions

By

Cesar F. de Guzman, Jr.

Abstract

This study was conducted to analyze the students' use of social media, its relationship to academic performance and technology ethics decisions. The students profile was analyzed using frequency count and percentage distribution while the relationship of the other variables was determined using Person's Product Moment Correlation Coefficient and the x^2. The respondent's technology ethics decisions were analyzed using Lawrence Kohlberg's stages of moral development. Results showed the respondents average age was17 and were female dominated (51%). Ilokanos (76%) are the dominant ethnicity and most of them prefer to become an agriculturist (25.08%). With regards to ICT gadgets possession, most of them have an access to social media using smartphones. Most parents did not go beyond high school in their education with an average monthly income of Php11,066. Generally, the students' level of academic performance is average with mean of 2.16. The extent of students' utilization of social media in general is moderate extent or average. The over-all technology ethics decisions of the respondents fell under the stage 3 according to Kohlberg's three stages of morality. There is significant positive correlation in the extent of dealing with social media in relation to age, sex, ethnicity and parents' educational attainment rank as level 3.Moreover, when the extent of utilization in social media increases, the technology ethics decisions also increases and when the extent of utilization in social media decreases, the technology ethics decisions also decreases.

Modeling Contraceptive Use Among Currently Married Reproductive Women in the Philippines

By

Jordan A. Agudilla and Lincoln A. Bautista, Ph.D.

Abstract

This research study entitled “Modelling Contraceptive Use Among Currently Married Reproductive Women in the Philippines” determined the factors of contraceptive method use among currently married reproductive women in the Philippines. Specifically, this study seek assessed the contraceptive use and background characteristics among reproductive women in the Philippines; to determine if there was significant association between the contraceptive use with respect to their background characteristics; and to determine the predictors of contraceptive among currently married reproductive women in the Philippines. In order to ensure representativeness across the country and to correct for non-response, statistical data used were weighted and took into consideration the complex survey design in the analyses, using the SVY command in Stata. Rao-Scott F-Test was used to determine if there was a significant association between contraceptive use and background characteristics of the reproductive women and Logistic Regression Analysis of complex survey data to come up with the determinants of contraceptive use among currently married reproductive women in the Philippines. After a thorough research and statistical analysis, the researcher hereby concluded that more than half (54.25%) of the currently married reproductive women were using any contraceptive method. Age, knowledge of any contraceptive method, heard family planning on tv last few months, read information about contraception on the internet, ideal number of children, woman currently working, woman educational attainment, husband’s educational attainment, number of living children, and wealth index have a significant association with contraceptive usage at 0.05 significant level. The determinants of contraceptive use among currently married reproductive women in the Philippines are the following variables: age, women educational attainment, number of living children, heard about family planning on tv last few months, respondent’s currently working and religion.

Determining the Nutritional Status and Severity of Undernutrition Among Children Aged 0-5 Years Old Using Binary Logistic Regression and Adjacent-Categories Logit Models

By

Tommy Jairus Narrajos, John Michael Alcantara and Claudine Gabrielle Mirabueno

Abstract

In the Philippines, undernutrition is a multifaceted issue that can be affected by basic causes at the social level, underlying causes at the household level, and immediate causes as illustrated in the UNICEF conceptual framework for undernutrition. In this study, household characteristics, parental factors, and individual traits were considered. Undernutrition may restrict an individual's physical and intellectual capacity, which may negatively impact the economy. Data was obtained from the 2013 National Nutrition Survey of the DOST-FNRI. This study utilized a logistic regression model to understand the factors that may affect the occurrence of stunting and underweight among children aged 0 to 5 years. Adjacent-categories logit models were also used to determine the significant factors that influence their severity. Results show that older children are more likely to be undernourished. Larger households tend to have more undernourished children with higher severity. Nutrition programs should also be complemented with educational programs since higher educational attainment among mothers affects knowledge and practices on child care. Furthermore, livelihood programs should be strengthened to improve maternal employment, and, consequently, raise household income. The models on stunting and wasting did not only uncover their determinants but also the factors at various levels of severity.

Health in the Workplace: Examining the Contribution of Organizational Factors on the Occurrence of Musculoskeletal Diseases in the Philippines

By

Robelyn C. Revilla

Abstract

Objectives: Workplace has been well-established as one of the major factors that directly shaped the health, safety, and even health behavior of employees. Musculoskeletal diseases such as back pain, neck and shoulder pain, and leg pain, registers the greatest number of observed cases among workers. This paper aims to explore which workplace attributes are associated with the incidence of musculoskeletal disorders among Filipino workers. Many studies on the effects of the workplace on health in the Philippines are commonly done at the industry level or sector specific which usually utilized a small-scale survey or selected companies.

Methods: The data used in this study came from the Integrated Survey on Labor and Employment (ISLE) 2015/2016. This survey was able to collect data from 9,894 establishments nationwide. There are six (6) organizational characteristics being tested as explanatory variables. The first two were related to the physical attribute of the establishment while the remaining four (4) were organizational practices. The main outcome measure is the occurrence of musculoskeletal disease which refers to those establishments with at least one (1) recorded case for the reference year.

Results: Using logistic regression model, the results showed that five out of six organizational factors are associated with the occurrence of musculoskeletal diseases in establishments. These are business classification, geographic location, conduct of annual physical exam, implementation of healthy lifestyle program, and ergonomics intervention.

Conclusions: This study highlights that despite the implementation of safety and health control measures/programs/interventions in the workplace, musculoskeletal diseases are still prevalent in the workplace. Further studies on a combined individual and organizational data to be able to have a more holistic picture of workplace health status are recommended.

Reframing Gender Disparities in Basic Education in the Philippines

By

Naomi Fontanos and Dina Jona Ocampo, Ph.D.

Abstract

Gender disparities in basic education outcomes in the Philippines remain unresolved and consensus that boys are underperforming compared to girls persists. However, there have not been adequate explanations for the disparities nor any corresponding interventions to address the same. Thus, this paper revisits the issue in light of new understandings about gender and achievement and interrogates the conclusion that boys are underachieving in basic education compared to girls. Historical data pertaining to the education participation (gross enrolment rate, net enrolment rate, cohort survival rate, and completion rate) and educational performance (National Achievement Test) of boys and girls from the year 2000-2015, the period covering the Millennium Development Goals (MDGs) and the Education for All (EFA) campaign, were collected, examined and compared longitudinally and trends and patterns were analyzed. Results show that gender disparities are indeed observable, however, data for both boys and girls need to improve and reflect better participation and learning. The way education indicators and disparities based on gender are reported also needs to be challenged and re-framed. Interventions for gender disparities need to be multi-sectoral to address all threats to inclusion as well as challenge gender regimes in schools that enforce ideas of femininity and masculinity that impact on the lives and schooling of boys and girls.

Impact of Violence Against Women on Reproductive and Child Health in the Philippines

By

Wilma A. Guillen, Mechelle M. Viernes, Anna Jean C. Pascasio, Jayson Christ M. Conti and Hannah U. Custodio

Abstract

Violence against women is recognized as a global public health and human rights problem that needs urgent attention. Based on the 2017 National Demographic and Health Survey (NDHS), the percentage of women aged 15-49 who have experienced any form of physical, sexual or emotional violence by their current or most recent husband/partner decreased to 24.4 percent from 25.9 percent in 2013. Moreover, women who experienced spousal violence in the 12 months preceding the survey declined from 15.6 percent in 2013 to 14.7 percent in 2017.

Studies show that women who experienced violence by their husband or intimate partner are more likely than non-abused women to have difficulty in using contraceptives effectively.[1] Women who were abused during pregnancy are less likely to gain needed weight or to access prenatal care compared with pregnant women who were not abused.[2] Furthermore, violence during pregnancy was associated with low birth weight of the baby.[3]

Using the 2013 and 2017 NDHS data, this study will explore on the association between violence against women among ever-married women and women's reproductive and child health such as contraceptive use, number of antenatal visits, estimated birth weights of children, among others using pooled multinomial logistic regression. The study also aims to determine the differences in reproductive and child health between abused and non-abused ever-married women.

[1] Jacqueline C. Campbell, "Health Consequences of Intimate Partner Violence," *The Lancet* 359, no 9314, (2002): 1331-336; and Lori Heise, Mary Ellsberg, and Megan Gottemoeller, *Ending Violence Against Women* (Baltimore: Johns Hopkins University School of Public Health, 1999).

2 Jacqueline C. Campbell, Claudia Garcia-Moreno, and Phyllis Sharps, "Abuse During Pregnancy in Industrialized and Developing Countries," Violence Against Women 10, no. 7 (2004): 770-89.

[3] Elitette Valladares et al., "Physical Partner Abuse During Pregnancy: A Risk Factor for Low Birth Weight in Nicaragua," *Obstetrics & Gynecology* 100, no. 4, (2002): 700-705.

Women Empowerment and Correlates: Evidences from the 2017 National Demographic and Health Survey

By

Percival A. Salting and Daniel G. Varona

Abstract

The Philippines has made significant strides in elevating awareness on gender equality as evidenced by women empowerment in the country. Results of the 2017 National Demographic and Health Survey (NDHS) showed that a large majority, almost 8 in every 10 women age 15 to 49 years make their own informed decisions regarding sexual relations, contraceptive use and reproductive health care. This is a positive development especially in relation to ensuring universal access to sexual and reproductive health and reproductive rights (Target 5.6.1) in line with Goal 5 of gender equality and empowerment all women and girls under the of the Sustainable Development Goals (SDGs).

Using data from the NDHS 2017, the study would like to further look at the characteristics of women gaining empowerment and correlate it with selected health outcomes (such as antenatal visits, skilled birth attendant at delivery, child immunization, etc) A composite Women's Empowerment Index (WEI) will be developed based on the following: i) household decision-making, ii) ownership of land or house, iii) ownership of bank account/s, iv) proportion earning cash, and v) women's education. The WEI will classify women into three empowerment levels, high, moderate, and low empowerment.

Variations in women's empowerment (WEI) in relation to socio-demographic characteristics (e.g., age, type of residence, region and wealth quintile, etc.); attitude and behavior regarding spousal violence; and some important health outcomes will be explored using bivariate and/or multivariate analyses. Findings may provide evidence to association of women's empowerment with attitude and behavior on spousal violence and with health of women and their children.

Measuring Customer Traffic Using Computer Vision

By

**Edward Francis L. Lacanlale, Sharlaine Louisse P. Liang,
Micah Jane A. Paglicawan and Juan Gabriel D. Santos**

Abstract

Videos are recordings of moving visual images that can monitor various activities. This form of media is present in multiple stores and businesses in the nature of Closed Circuit Television (CCTV), mainly for security purposes. However, the system's stored videos can also be leveraged to conduct a digital way of doing market research. The goal of this study is to be able to determine the viability of using CCTV footage in measuring customer traffic in specific store sections. This can be helpful in positioning of products, determining peak times, and scheduling of resources. The researchers find that R-CNN with the Inception framework is capable of detecting, counting, and masking people inside stores.

Ano ang Klase Mo?: Updating the Philippine Unified Socioeconomic Classification (1SEC) and Profiling the Different Classes

By

Genelyn Ma. F. Sarte and Michael Van B. Supranes

Abstract

Socioeconomic Classification (SEC) is a broad term, which often refers to a set of categories describing an individual or household's income, purchasing power, and/or relative position in society. Various countries, and research agencies have different ways of defining (SEC). In 2012, a Unified Socioeconomic Classification (referred to here as 1SEC 2012) was developed based on 2009 Family Income and Expenditure Survey (FIES) data. This study updates 1SEC 2012 by analyzing the expenditure pattern of 41,000+ households sampled in the 2015 FIES. Similarly, a 9-tier classification was constructed using a hierarchical clustering algorithm. The least spending household falls in Cluster 1, while the highest spending household falls in Cluster 9. Forty-nine percent (49%) of households fall in the bottom 2 clusters, while less than 4% of households fall in the top 2 clusters. In addition, various predictive models were considered in identifying important predictors of 1SEC. As expected, it is difficult to classify middle clusters correctly. Important predictors of 1SEC include (1) urban/rural and regional membership, (2) educational background and occupation of the household head, (3) composition of the household (e.g. number of employed members, household size), (4) nature of communication expenses (e.g. internet access, postpaid subscription), (5) ownership of energy-consuming assets (e.g. refrigerator, washing machine), (7) education spending, (8) quality of living shell (e.g. type of toilet, strong walls), and (9) miscellaneous or leisure spending (e.g. paying for domestic services, buying new clothes, spending on trips abroad).

Harmonization and Localization of the Philippine Development Plan (PDP) 2017-2022 Results Matrices (RM) and Sustainable Development Goals (SDG) Indicators at the Regional and Sub-Regional Levels: The Northern Mindanao Experience

By

Richardson T. Cua

Abstract

The paper provides a case study of the harmonization and localization of the PDP RM and SDG indicators at the regional, provincial, and highly-urbanized cities levels. Localization efforts in Northern Mindanao commenced with the translation of PDP RM and SDG indicators to applicable regional indicators in 2017. This was further reinforced by the DILG-NEDA Joint Memorandum Circular No. 1 (s. 2018) prescribing guidelines to operationalize the harmonization and localization efforts and ensure the formulation of provincial RMs consistent with the regional RMs and SDGs.

Results reveal partial match, availability and applicability of indicators at the provincial level, and further limited disaggregation at the HUC, city, and municipal levels. Initial assessment of the harmonization and localization efforts also brings to the fore the need to: 1) address the data gaps at the local level, 2) pursue alignment of national-local RDP RM and SDG targets, 3) establish provincial statistics committees (PSCs) for results monitoring, 4) translate local level targets into priority local programs and projects; and 5) leverage on new and upcoming legislations (e.g. CBMS law) to institutionalize generation and compilation of RM and SDG statistics at the local level.

Advancing the Agenda of Subregional Economic Accounting for Better Policy Analysis: Developing Framework for the Provincial Product Accounts (PPA)

By

Florande S. Polistico, Cynthia P. Donato, Faith Hyacinth M. Balisacan, Christian Patrick E. Vinculado, Dean Joseph A. Villanueva and Anne Pauline M. Genavia

Abstract

Guided by the framework of the System of National Accounts, the Philippine Statistics Authority (PSA) compiles the economic accounts highlighting the Gross Domestic Product (GDP) as a powerful statistical indicator of national development. At the regional level, economic accounts are presented through the Gross Regional Domestic Product (GRDP) which is an important tool in the formulation of regional development plans and policies.

The growing demand of policy-makers for statistics that describe the economic development of each of the provinces in the country leads to the compilation of Provincial Product Accounts (PPA) to support decentralized planning and policy-making.

This paper evaluates the existing mechanisms to support the development of PPA in the Philippines. Specifically, this paper provides the framework for the generation of source data, coordination and compilation of PPA. Using the available data and parameters, presented in this paper are the GDP by province particularly on the share of the provinces to the regions and provincial industry structure. Preliminary analyses relative to the regional and national economy are also provided. Lastly, issues and challenges are presented in this paper as well as the way forward.

Inclusive Growth and its Implications to Corporate Social Responsibility

By

Virginia L. Anceno

Abstract

Impressive development gains over the years have improved the lives of many people in the Cordillera Administrative Region (CAR), however, inclusive growth remains wanting despite the increasing GRDP and decreasing poverty incidence, indicating that the trickle-down effect failed to reach the vulnerable sector. Corporate Social Responsibility (CSR) is the continuing commitment by business establishments to contribute to economic development while improving the quality of life of the workforce and their families as well as the community and society at large (www.wbcsd.org). This is an opportunity for establishments to do CSR programs and projects to further narrow down the gap. Unfortunately, 93.1 percent of the region's total establishments are micro enterprises which find difficulty to implement CSR. This study was conducted to examine the role of CSR, what programs and projects to be implemented, and by/with whom. It used secondary and panel data for quantitative analysis and document review, FGD, and key interviews, for qualitative analysis. Results recommended 15 strategic interventions: invest in CSR, align it to international and national commitments, push innovation among MSMEs, more philanthropy among large establishments/corporations, appropriate and accessible CSR programs and projects, harmonize policies on CSR and vulnerable sector, institutionalize standard auditing/monitoring and evaluation system, and strengthen collaboration between and among stakeholders, among others.

Pioneering the Formulation of Regional Statistical Development Program (RSDP)

By

Aldrin Federico R. Bahit, Jr. and Cherry K. Dionisio

Abstract

The statistical system is strengthened by improving the production, accessibility, and dissemination of statistics to stakeholders and data users. The Regional Statistical Development Program (RSDP) is an essential tool in capacitating and answering the needs of the local statistical system through the identification of statistical program, activities, research & innovation, and correlating these across the development programs/activities.

The Cordillera Regional Statistical Development Program (CAR RSDP) 2017-2023 was prepared in accordance with statistical needs of the Cordillera Regional Development Plan 2017-2022 which takes off from the Duterte Administration's 0+10 Socioeconomic Agenda and the first medium term plan of the *AmBisyon Natin 2040*.

The CAR Regional Statistical Development Program (RSDP) 2017 - 2023 consists of the regional statistical system-wide programs that cover statistical management and coordination, data production, statistical dissemination and use, research and capacity development, and resources in subnational statistical system. Further, the RSDP serves as a guide in monitoring the core regional indicators (region-specific indicators that determine the status of developments in the region) and the contribution of agencies and local government units in achieving the commitments to sustainable development goals (SDG).

This paper will present the coordination mechanisms employed by the Regional Statistical Services Office (RSSO)-Cordillera Administrative Region (CAR) in the formulation of the CAR RSDP, the pioneering activities done and the report on the monitoring of the statistical development programs enrolled for CY 2017 and 2018.

Unintended Consequences of Rent Control in the Philippines

By

Marife M. Ballesteros, Tatum P. Ramos and Jasmine E. Magtibay

Abstract

Rent control was introduced in the Philippines in 1971 in order to stabilize the prices of basic commodities during periods of calamities and macroeconomic instability. It has been adopted in succeeding years despite the country's exit from the highly inflationary environment. Rent control related policies, however, have had adverse impacts on the rental market. Consequently, the Philippine government has made changes to the original rent control setup; there was a move from the first to the second generation rent control. This study specifically determines whether second generation rent control is indeed free of the adverse impacts of its predecessor. It uses the 2014 Annual Poverty Indicators Survey to have an estimation of the net benefit of tenants under rent control.

The ABS-CBN Data Analytics Team's Visual Storytelling of 2018 Inflation

By

Edson Guido and Warren de Guzman

Abstract

In 2018, Philippine Inflation hit near 10-year highs brought about by high food prices. While this has been taxing for consumers and even government economic managers, it provided an opportunity for journalists to utilize data-driven reporting and data analytics as tools for effective visual storytelling.

Among the tools used were augmented reality graphics, to make the data more interesting to TV viewers. The team also created an online inflation calculator which could tell users how the surging inflation hit their budget in 2018.

All in all, the ABS-CBN Data Analytics Team coverage on 2018 inflation was unprecedented as there was no other attempt on national TV to produce data centered reports that went beyond the usual press release. It showed how broadcast journalists can make present big sets of data in a digestible and compelling way for viewers. The reports were enriched through unique visual tools such as augmented reality, interviews of consumers and retailers on the ground, and innovative executions online.

Thematic Mapping: A New Way to Visualize Data

By

Collioni P. Altares

Integrated Remote Sensing in Determining Areas of High Geothermal Potential in the Exploration of the Amacan Geothermal Prospect, Philippines

By

Jeffrey T. Bermido, Kevin G. Guillermo, Oliver A. Briola, Leonardo L. Morales, Releo D. Contemplacion and Joeffrey A. Caranto

Abstract

Leonard Kniassef is one of the active volcanoes in the Philippines, located in the eastern portion of Mindanao Island. It is interpreted to host the high temperature Amacan geothermal system, known for its Quaternary volcanism set on a favorable structural environment. In order to identify priority areas for detailed exploration, this study integrated three remote sensing techniques with minor statistics application namely: lineament analysis, hydrothermal alteration, and thermal anomaly mapping. Digital elevation models were processed for the lineament analysis, where slope statistics were correlated with the underlying tectonics. Thermal Infrared Sensor Band 10 of Landsat 8 was also processed using a series of raster calculations to highlight areas with high surface temperatures. The Operational Land Imager (OLI) bands of Landsat 8 were also processed using composite and band ratio operations to highlight alteration zones and discriminate the type of alteration present. Combining the three remote sensing results, five priority areas are identified to have high geothermal potential and activity. These areas are recommended for more detailed geoscientific assessments.

A Spatial Econometric Model for Household Electricity Consumption in the Philippines

By

Marie Therese S. Sario

Abstract

While electricity is regarded as a catalyst for economic development, twelve million Filipinos still do not have access to electricity. Most of the studies relating to energy focused on socio-demographic and economic context. This study seeks to propose a new perspective in the Philippine's household electricity consumption by incorporating space. To determine this, three spatial econometric models were considered: Spatial Error Model, Spatial Lag Model, and Spatially Lagged X model. The result of several model specification tests led to the conclusion that the household electricity consumption in the Philippines exhibits spatial autocorrelation. Spatial Lag Model (SLM) with a spatial distance weight of 150 km is the most appropriate model for the study. The study shows that by decomposing the result of the Spatial Lag Model, a direct effect of Human Development Index, concrete national road, urban population, high electricity cost and low voltage on household's electricity consumption was observed.

Export Geographical Diversification and Economic Growth Among ASEAN Countries

By

Grace Ivy S. Arranguez and Jennifer E. Hinlo

Abstract

One of the major strategies to propel economic growth is to diversify export products, and there are recent trends in ASEAN countries. To investigate this notion, this study seeks to measure the relationship of export geographical diversification and economic growth among ASEAN countries for the period 1980-2014. With a sample of 5 countries- Indonesia, Malaysia, Philippines, Singapore and Thailand- the study computed for the geographical diversification of countries using the Herfindahl index. Furthermore, time series analysis was employed to test the relationship of these variables among ASEAN. Results showed a generally decreasing trend of HHI values of all 5 countries. Results of the analysis of the relationship showed a bidirectional relationship for Malaysia and a unidirectional relationship from export geographical diversification to economic growth in the case of Philippines. To improve export product diversification, there is a need to formulate and implement appropriate strategies to improve export structure. Furthermore, there are countries that needs diversification of export structure in terms of market destinations to improve its economy.

Data Diplomacy within ASEAN Countries and Beyond

By

Joefe B. Santarita, Ph.D.

Abstract

Data diplomacy is ‘an emerging cross-disciplinary idea that addresses the role of diplomacy and negotiation in relation to data access and sharing, as well as the impact of data on diplomatic relationships among nations and organizations. In contemporary times, data is rapidly moving to the “premier league” of global diplomacy, alongside the more traditional issues of disarmament, health, trade, migration, and human rights. Thus, data becomes an important tool in advancing diplomacy in the field of consular affairs, strategic planning policy research, public diplomacy, development and humanitarian aid, international law among others.

Drawn from interview as well as from online and offline library research, this paper will examine the impact of data on diplomatic relations among the member states of the Association of Southeast Asian Nations (ASEAN) as well as the latter’s conduct of international cooperation and partnership beyond the region. In particular, it will closely highlight the role of ASEAN Statistics Division (ASEANstats) in the promotion of regional integration as well as active collaborations of ASEAN to its immediate and extended neighborhood.

School Hardship Index: A Metric for Assessing Multiple Dimensions of Service Deprivation Among Schools

By

Dexter N. Pante

Abstract

To improve the economic status of teachers and their working conditions, the Department of Education with technical assistance from UNICEF conducted a policy review on the implementation of the Special Hardship Allowance provided under the National Budget Circular 514. Among the challenges encountered, including the lack of clarity on the definition of hardship post, which is purely measured using distance, inconsistency of the policy with the Magna Carta for Public School Teachers, and the subjective interpretation that leads to misidentification of eligible teachers. To address these issues, the DepEd and UNICEF have developed a Hardship Index that measures relative deprivation across schools based on the distance to the Schools Division Office (measured by travel time and cost), poverty incidence, the incidence of human violence, access to basic utilities like water, electricity, and telecommunications, and temporary learning facilities. The Hardship Index has values ranging from 0 to 1; index values close to 0 have low hardship while values close to 1 have high hardship. Using this Index, DepEd Management determined the cut-off for hardship posts, which encompass 6,743 schools. Under this proposal, over 57,000 public school teachers are entitled with 25% of their monthly salary as Special Hardship Allowance.

Examining Factors Influencing Students' Achievement in Mathematics Using Hierarchical Linear Modeling

By

Michelle R. Lacia

Abstract

This paper highlights the results of HLM to examine the factors that could influence students' achievement in mathematics in public schools in Cotabato City, Philippines. This involved 638 Grade Six elementary and Fourth Year high school students and 24 mathematics teachers. Survey questionnaires that were validated using CFA and Rasch modeling, respectively, were administered to both teachers and students. Raw scores were transformed to measures before HLM was performed. The HLM results show that father's educational attainment and mathematics anxiety (MAS) have significant influence on mathematics achievement. In addition, enhanced teaching practices (EATP) directly influence mathematics achievement, while mathematics teaching outcome expectancy (MTOE) interact to influence the relationship between MAS and mathematics achievement. Implications to mathematics teaching practice are discussed.

Development of a Prototype of a Visualization Tool for Assessing the Efficiency of Primary and Secondary Public Schools in the Philippines

By

John Lorenzo A. Yambot

Abstract

In the economics of education, an educational institution is considered as a firm which transforms inputs into outputs. It is similar to a production line wherein efficient returns are expected. An education system is efficient if it can achieve the best outcomes by maximizing the available resources. Determining how schools perform in terms of their efficiency may suggest ways to improve education outcomes for a given level of resources. The study aims to develop a prototype of a visualization tool for assessing the efficiency of primary and secondary public schools in the Philippines. The efficiency of the school was measured by formulating an education production function using Poisson stochastic frontier analysis with the number of examinees achieving at least a minimum overall proficiency level in all subtests of the National Achievement Test as the dependent variable. The model was used to estimate technical efficiency scores for selected primary and secondary public schools. The estimated technical efficiency scores of primary public schools were found to be relatively higher compared to those of secondary public schools. A prototype of a visualization tool for education indicators was also developed. This tool aims to support the capability of local school boards and other educational institutions in making evidence-based decisions.

Climate Change and Internal Migration in the Philippines: Preliminary Assessment of Evidence for Policy and Governance

By

Jorge S. Ebay

Abstract

Experience with extreme events over the decade demonstrates that the business as usual mode of doing things does not work as new categories of “victims” and “survivors” are created by rapidly evolving risks. Such is the case of people or groups of people who move due to environmental factors. Migration is an age-old demographic phenomenon but its interplay with climate-related variables represents a new territory of inquiry. In view of this, the study postulates that specific slow onset climate events drive internal migration in the Philippines. The research asks the basic question: how does slow onset climate events propel internal migration in the Philippines? Accordingly, it examines (a) the prevailing policy regime or existing policy framework that relates with slow onset events and internal migration; (b) the density of actors or stakeholder network involved; and, (c) support actions needed to further enhance the understanding of the dynamics between climate change and human mobility. Overall, the study hopes to improve applied knowledge relating to the sustainable management of human mobility in the context of climate change in the Philippines. It argues for the need to substantiate the link been climate change and internal migration to determine the value and applicability of migration as a strategy for risk reduction or adaptation and to guide future research, policy and program.

Establishing and Utilizing Registry of Barangay Inhabitants and Migrants for Local Development Planning

By

Lolito Tacardon

Abstract

The Registry of Barangay Inhabitants and Migrants (RBIM) is a database that aims to generate basic demographic and socio-economic data from all residents including migrants within a certain locality as bases for local development planning and policy formulation. The RBIM information system specifically generates variables on name, sex, age, household headship, marital status, religion, number of living children, address, migration history, and basic socio-economic characteristics such as access to family planning services, housing characteristics.

The data are generated strictly within the purview of the Data Privacy Act through the community volunteers and hired enumerators. The data are then encoded and processed through a database software. The information and knowledge generated from the database are used for the development of various plans and programs such as Barangay Development Plans, Gender and Development Plans, and annual estimation of service requirements. It's future use includes tracking of household movement for disaster risk reduction and management and climate change adaptation initiatives.

Determinants of Female Labor Force Participation in the Philippines

By

Rosemarie G. Edillon, Ph.D., Emily Christi A. Cabegin, Ph.D. and Rebecca S. Gaddi, Ph.D.

Abstract

The Philippines was among the 193 member states of the United Nations that adopted in 2015 the 2030 Agenda for Sustainable Development, designated in 17 Sustainable Development Goals that include the achievement of gender equality and of full and productive employment and decent work for all women and men. Having fully closed the gender gap in educational attainment, the Philippines maintains its lead rank in the world in achieving gender equality in education but takes 106th place out of 149 countries in gender equality in labor force participation (World Economic Forum, 2018). This makes the Philippines the third worst country in the ASEAN region in terms of gender inequality in labor force participation, next to Indonesia and Myanmar which ranked 118th and 109th, respectively.

The labor force participation rate of Filipino women largely stagnated at 49 to 50 percent for most of the past two decades. In 2018, both the female and the male labor force participation rates experienced a slight dip (from 78 percent in 2016 to 75 percent in 2017 for the males and from 49 percent to 47 percent for the females), primarily due to a growing working age population that is coupled with a zero or negative employment growth rate. It is noted that statistics on female labor force participation rates do not account for the participation of women in overseas labor markets.[4]

This study aims primarily to identify the factors that determine a woman's decision to participate in the labor market using both quantitative and qualitative approaches. Other than aggregate labor force participation rates, the paper also examines gendered differences in the type of employment (e.g., salaried employment, informal sector employment) to distinguish between quantity and quality of employment.

[4] In the PSA guidelines which follows international standards, overseas Filipino workers are not counted as part of the country's working age population and therefore not part of the domestic labor force.

Examining the Women's Low Labor Market Participation Rate in the Philippines: Is Housework the Missing Link?

By

Connie B. Dacuycuy, Ph.D.

Abstract

While the Philippines has achieved several milestones advancing gender equality in the country, there are some areas that can still benefit from further government interventions. One such area pertains to the moderate female participation in the labor market, which hardly improved in the last 26 years. The lackluster participation of women in the labor market presents a continuing concern, and this is amply reflected in Philippine Development Plans and laws designed to support working women. However, other important factors remain to be addressed, and this paper looks into the role of women's housework. The paper also discusses the role of housework on men's market work. Doing so provides a holistic perspective and hence, a better narrative to ensure that both men and women equally benefit from development. Results indicate that housework affects both men and women's participation in market work. However, the study finds a bigger increase in women's market work participation when they do not engage in non-market work and a bigger decrease when their spouses do not share in the household production.

In Search of Women in the Sandwich Generation

By

Excelsa C. Tongson

Abstract

The invisibility of women in the sandwich generation and their unpaid care work was the impetus to study the 1990, 2000, and 2010 NCR census data. As part of a bigger research, it aimed to determine the number of these women in this unique familial position. Results revealed that in three consecutive census periods, the number of female members of the family and female household heads living with at least one older person and one minor child grew 1.75 times and 21 times, respectively. While a considerable disaggregated data on sex, marital status, education, and housing tenure is accessible, censuses specified limited information about disability and silent about SOGIE of women in the sandwich generation. The study recognizes the dynamics of gender-based inequality in demographic inquiry and the prevailing gender structure that dictates what positions men and women assume that makes the latter hidden or unrecognized. Researches on demography should lead to the understanding of processes or conditions necessary for policy interventions and programs that impact the capacity of women in the sandwich generation.

Social Protection of Women in the Philippines

By

Aubrey D. Tabuga, Ph.D. and Carlos C. Cabaero

Abstract

The Philippines is currently experiencing its most sustained economic growth so far. Unfortunately, its vulnerabilities to natural calamities, and structural hurdles that prevent its robust economic growth to equitably benefit all segments of the society, and the uncertainty brought by the dawn of the Fourth Industrial Revolution, can outweigh such continuous economic advancement and put the country in a fragile state unless effective interventions are developed and implemented. Therefore, one of the interventions of high salience is social protection. Unfortunately, the country has much to accomplish in terms of improving access to social protection. A focus on women's access is crucial in the light of their significantly lower labor force participation rate (LFPR) compared to that of men and because many women are in the informal sector. With the LFPR trend going down, more and more women are at risk of not having the protection that they need and there would be greater pressure on the government to finance noncompulsory social protection schemes to protect those who are not formally employed. This paper seeks to analyze access of women to social protection with an objective of recommending insights for purposes of enhancing the design of social protection programs in the country.

Philippine Metalcasting Industry 2017: A Status Report

By

Alexander P. Gonzales, Ph.D.

Abstract

The metalcasting industry is currently dominated by China, which produced 46.2 million metric tons in 2014 and this accounts for more than 40% of the global casting production. Germany leads the per-plant production with 8,818 metric tons per-plant output. The scale of production of the Philippine metalcasting industry is nowhere near the level of the current global players. This study aims to determine the status of the Philippine metalcasting industry for 2017. This study utilized a descriptive survey research method. The process includes the preparation of the survey questionnaire and submission to the Philippine Statistics Authority (PSA) for approval, conduct of the survey proper with industry interviews, and a focus group discussion for confirmation of collected and processed data. The Philippine metalcasting industry is in its critical stage. Several micro and small metalcasting shops in the country have closed down due primarily to its incapability to compete in the Philippine market as well as globally. About 71% of the metalcasting workforce is concentrated in the medium and large metalcasting companies. The medium and large metalcasting companies are also responsible for 97.1% of the casting production in the country. Government intervention is essential for the survival of the industry.

Estimating the Duration of Construction Projects: A Multiple Regression Analysis of S-Curves

By

Dean Joseph A. Villanueva and Jenny Lou Z. De las Alas

Abstract

In the System of National Accounts (SNA), the recording of construction investments is measured by its work-in-progress within the accounting period. In order to estimate the construction actual accomplishment for the accounting period, the work in progress is estimated using the S-Curve, a logistic curve that plots the cumulative quantities of construction project for each period until the project is completed. Considering the different characteristics of construction projects that affect the project duration, there is a need for more precise S-Curves.

The goal of this paper is to update the S-Curve parameters based on the specific characteristics of the building such as the type of the building, the total floor area, the estimated cost of construction, and other variables that potentially determine the duration of construction projects. The 2013 and 2014 Construction Statistics from Approved Building Permits microdata are used and the relationship between the variables in the Approved Building Permits and the duration of the project will be determined using multiple regression analysis.

The variables proposed date of construction and expected date of construction in the microdata are used to determine the duration of a construction project. The paper posits that the factors that are unique to each construction project significantly influence the duration of the project.

Statistical Indicators of Inclusive and Sustainable Industrialization

By

Petra Kynclova

Abstract

The 2030 Agenda for Sustainable Development calls for collaborative partnerships on all levels and emphasizes achievement of sustainable development for all by building on the principle of “leaving no one behind”. Inclusive and sustainable industrial development (ISID) has been included in the global development agenda under Sustainable Development Goal (SDG) 9 in recognition of its relevance in an integrated approach to all three pillars of sustainable development, the economic, social and environmental dimension.

Statistical indicators of ISID measure the regional and international trends observed in the process of industrialization. Although industrialization contributes to the universal objective of economic growth, its impact differs depending on the country's given stage of development. In developed economies, industrial growth is reflected in the achievement of higher productivity, embracement of new technologies, intelligent production processes and the reduction of the impact of industrial production on the environment and the climate. For developing economies, industrialization implies structural transformation of the economy from traditional sectors such as agriculture and fishery to a modern manufacturing industry based on innovation and technology. Such an expansion of the manufacturing sector creates jobs, helps reduce income poverty, introduces and promotes new technologies and produces essential goods and services for the market. The transition to manufacturing opens various paths to socio-economic development but also poses challenges in terms of efficient use of natural resources.

UNIDO is recognized as a specialized agency in the United Nations system mandated to promote industrial development and international industrial cooperation with an overall mandate to collect, compile and disseminate global industrial statistics. In the context of the 2030 Agenda, UNIDO represents a custodian agency of four targets and six indicators of Goal 9 aiming to promote inclusive and sustainable industrialization and foster innovation.

The presentation will show UNIDO statistical activities on monitoring and forecasting progress towards achieving industry-related targets of SDG 9.

Digitizing and Geotagging of Palay and Corn Parcel

By

Ruel M. De Castro

Abstract

The Palay and Corn Production Survey (PCPS) is one of the major agricultural surveys conducted by the Philippine Statistics Authority (PSA). This generates estimates and forecasts on palay/corn production, area and yiel. Together with the monthly Palay and Corn Stocks Survey (PCSS), an estimate of the current stock of rice and corn can be generated which will then be the basis of whether an importation of rice and corn is needed. Estimating Palay/Corn area plays a crucial role, to come up with a conservative estimate of production, it is important that palay/corn area planted should be validated since the current frame used in the system was taken from the last 2012 Census of Agriculture and Fisheries and 2017 Listing of Household Farms.

Digitizing Palay and Corn area using Google Earth and Mapping application is a good start for producing digital map that will become a database of information. Area estimation during the conduct of Damage Assessment Reporting System (DARS) can easily be done using Google Maps Area Calculator instead of guesstimating the area submerged during flooding.

Accordingly, summary from digitizing can be used to update the current PPS/CPS frame in order to generate an updated area of the survey result.

Framework for Physical Monitoring and Evaluation Using Geomatics for Irrigation Networks

By

M.E.A. Tupas

Abstract

Monitoring and evaluation is a key activity undertaken for good governance. This ensures projects implemented by the government are being delivered, and delivered on time and following prescribed technical specifications. However, monitoring and evaluation have been practiced based on paper (tabular) reports without much physical attribution, resulting in possible subjective accomplishment reporting. In this work, we present a framework devised for monitoring actual physical accomplishments of irrigation network projects using geomatics. Various geomatics techniques were explored to address different aspects for reporting. In general, geotagged accomplishment reports are validated by satellite remote sensing to determine presence of canals and extract canal lengths for initial validation. If and when needed, sampling using unmanned aerial vehicles (UAVs) to extract detailed canal cross sections is proposed to check for technical compliance. The process would be back-ended by a web based portal utilizing geographic information services for data analytics and evaluation. The framework was prototyped on the upper Pampanga River Integrated Irrigation System (UPRIIS) where several sites were used for ground validation and testing. Initial results show the viability of the proposed methodology. Further testing and expansion to other sites is currently being explored, the end goal of which is to provide an evidence based physical monitoring and evaluating framework that can be extended to other government projects.

A Geoinformation Framework for HLURB's Decision Mapping System

By

O.T Macapinlac, T. Guevarra, M.E.A Tupas, I. Prado and R. Roxas

Abstract

The decision mapping system of the Housing and Land Use Regulatory Board (HLURB) intends to monitor the extent of development in a specified land use/ zoning area. This process is done by comparing the location of projects with Locational Clearances and Development Permits to an amended zoning map of the local government unit (LGU). For this to operationalize, three important datasets are required in the analysis: (1) Zoning Map, (2) Agricultural Reclassified Map (with these two resulting to an amended zoning map) and (3) point location of Projects with corresponding attribute information. A system was designed and being developed to assist HLURB in this workflow.

In this paper, we present how a web portal, a QGIS plugin system and a mobile-data collection tool are designed and built to implement the decision mapping system. The Land Use and Zoning Information System (LUZIS) is an information system (IS) intended to operationalize data gathering and organization and monitoring function of development projects within a municipality/city. With a GIS-based and web portal framework, LUZIS can generate reports on how compliant or deviated the development of an area to the existing land use. Hence, LUZIS can be used as a decision tool in revising succeeding land uses and zoning of an area.

Incorporating Transportation Information in Housing Database System

By

Hussein Lidasan and Rafael Rivera

Abstract

Most surveys and data collections related to housing and census surveys have limited queries on information or data needed for transport planning and conduct of transport studies and travel behavior analyses. This paper attempts to provide a discussion on the intention to recommend inclusion of transport enquiries on households and members. These are relevant not only in providing proper understanding of their travel behavior and patterns but also in aid of travel demand estimation and analyses. This way, proper and responsive transport policies and corresponding strategies and measures can be formulated. Likewise, in the planning of transport facilities related to housing, information from households will be relevant and useful.

Updated Local Shelter Planning Manual

By

Housing & Urban Development Coordinating Council, United Nations Resettlement Programme (UN Habitat)-Philippines a nd Eva Maria Pechueco-Marfil

Abstract

The increasing problem on lack of adequate shelter and the inability of LGUs to efficiently quantify the number of affected households and respond to this problem prompted HUDCC & UN Habitat to work together to come up with an updated Local Shelter Planning Manual in 2016. The manual serves as guide for the LGUs in crafting their local shelter plans by providing a step by step procedure in calculating the housing backlog, wherein the locations and number of households needing housing assistance are identified; projecting the future housing needs due to changes in population size; estimating affordability of affected households for housing and its related services by factoring in the potential percentage of household income that can be used to pay for housing & its related services; analyzing resources needed such as land, provision of basic services, and housing finance vis-à-vis resources available; and also the pacing of the response of LGUs in addressing the housing needs in accordance with the resources available. All these variables are assessed and used as basis in coming up with the strategies, projects and activities towards shelter provision within the duration of the plan.

Evaluating the Quality of Statistics Produced by the Philippine Statistics Authority using the UN NQAF Assessment Tool

By

Candido J. Astrologo, Jr., Jenelyn S. Bañares, Joy Angiela H. Garraez, Michelle P. Robles and Justin Angelo O. Bantang

Abstract

The United Nations Statistical Commission (UNSC) adopted the new United Nations National Quality Assurance Frameworks (UN NQAF) Manual for Official Statistics in March 2019. The Philippine Statistical System (PSS) welcomed this innovation as it addresses the challenges on quality of official statistics posed by new data sources and new data providers in an expanding data ecosystem.

This paper describes the results of the initial evaluation of the quality of statistical processes and statistical outputs of the PSA, its institutional environment and how it manages the statistical system using the UN NQAF assessment tool. The adherence to UN NQAF 355 elements, 87 requirements and 19 principles is evaluated and scored as: 1-Full compliance, 0.5 - Partially compliance, or 0 - No compliance.

The initial assessment shows that the PSA, in its 5 years of existence, is compliant to 76% of the UN NQAF elements and performs best in managing the statistical system and statistical outputs. However, improvements can be made in managing its institutional environment and statistical processes.

Registers and Administrative Forms Review System: Assessment of the Quality and Potentials of Administrative Data in the Philippine Government

By

Patricia Anne R. San Buenaventura, Cherilyn C. Valdez, Jomar B. Cariaga, Saturly S. Sevenorio and Joy Angiela H. Garraez

Abstract

In line with the commitment of the Philippine Statistics Authority (PSA) to provide more timely and quality statistics, the PSA has initiated the development of the Registers and Administrative Forms Review System – a mechanism to review and promote the harmonization of administrative forms and registers in the Philippine Statistical System (PSS) for better use in official statistics. Specifically, the Registers and Administrative Forms Review System aims to: (a) improve the quality of administrative data collected from administrative forms and registers that are used in the generation of official statistics; (b) encourage use of administrative data to inform government agency decisions and programs; (c) respond to data gaps in key development indicator frameworks; and (d) contribute to the development of capacity of government agencies to generate and analyze their own administrative data.

This paper describes the proposed quality assurance framework for administrative data and the assessment process to be undertaken under the Registers and Administrative Forms Review System. It also explores how existing administrative data sources of the PSA perform vis-à-vis the proposed quality assurance framework under the Registers and Administrative Forms Review System.

The Registers and Administrative Forms Review System is founded on the principles and requirements of the new United Nations National Quality Assurance Frameworks (NQAF) and was developed in consultation with the various units of the PSA as well as key government agencies in the PSS.

Demographic Data and Methods for Public Policy and Planning

By

Grace T. Cruz, Ph.D.

The Commuter-Adjusted Population of Metro Manila: A New Methodological Approach

By

Nimfa B. Ogena, Ph.D.

Measuring the Digital Economy in the Philippines

By

Vivian R. Ilarina, Florande S. Polistico and Mark C. Pascasio

Abstract

The digital economy has been recognized both in the international and local arena for its wide array of benefits and ability to transform economies and influence social transactions. However, the lack of generally agreed definition of the "digital economy" and the inadequacy of existing classification standards that can be used to identify the economic activities that fall under the digital economy serve as bottlenecks towards its measurement. Despite these concerns, because of the importance of the digital economy in more accurately monitoring economic progress, many countries are trying to create digital economy indexes based on household and industry surveys with the objective of measuring the size of digital economy in terms of the Gross Domestic Product (GDP), investment and other economic indicators.

As an initial step towards the measurement of the digital economy in the Philippines, this paper aims to review the Philippine Standard Industrial Classification (PSIC) to see how it would allow for identifying the digital economy activities and coming up with an operational definition of the digital economy. As digital activities are broadly based on Information and Communications Technology (ICT) activities that have already been singled out in the UN ISIC 4.0, the review should see if it is possible to go deeper into the classification system to single out only digital activities, e.g. , internet-based version of the newspapers, etc. The paper will provide a discussion on the possible data sources for the "digital economy" that are available both in the government and private institutions. Moreover, the paper will discuss a proposed general methodology and some indicators for measuring the contribution of the "digital economy". Lastly, preliminary estimates of the contribution of digital economy to GDP will be presented based on available data, most particularly the 2012 Census of Philippine Business Industry (CPBI) and succeeding Annual Surveys of Philippine Business Industry (ASPBI) as well as the Surveys of Information and Communications Technology (SICT) as the results of the 2018 CPBI are expected to be released only in December 2019.

Small Area Estimation of Underemployment in the Bicol Region Using Spatial Model-Based Approach

By

Mechelle M. Viernes and Driesch Lucien R. Cortel

Abstract

The Philippines remain to have a declining unemployment rate through the years. Although this progress exhibits a positive vision in the economy of the country, this does not equate towards an inclusive growth where poverty alleviation is accomplished. In recent times, underemployment, which is defined as the measure of employed persons who express the desire to have additional hours of work in their present job or an additional job, or to have a new job with longer working hours, has been recognized as an important indicator in measuring the growth of the economy. By determining smaller areas that has relatively high underemployment rate maybe relevant for policy-makers to provide programs that would generate sufficient and suitable employment opportunities for many Filipinos, particularly in the Bicol Region which continues to have a relatively high underemployment rate compared with the other regions. In 2018, the underemployment rate in the Bicol Region was estimated at 29.6 percent, surpassing the national underemployment rate of 16.4 percent based from the 2018 Annual Labor and Employment Estimates of the Philippine Statistics Authority (PSA). Thus, this paper aims to present the results of a study that generates the city and municipal level underemployment statistics of the Bicol Region and use the statistics to assess the underemployment conditions in the region for year 2015. In generating the city and municipal level statistics, an indirect small area estimation (SAE) technique was employed which follows a spatial model-based approach. The city and municipal level estimates of the Bicol Region were generated using the Elbers, Lanjouw and Lanjouw (ELL) methodology while integrating spatial information into the model. The 2015 Labour Force Survey(LFS), 2015 Family Income and Expenditure Survey, 2015 Census of Population PopCen), Barangay Listing (BL) and administrative data sets of the region were the data sources for this study. Areas with high underemployment rate were identified wherein programs can be implemented to help them.

Small Area Estimation of Comprehensive Knowledge of Women Ages 15 to 49 Years on Human Immunodeficiency Virus in the Philippines

By

Jenny G. Amora

Abstract

With the rising trend in HIV cases in the Philippines, the country has been marked as the fastest growing HIV epidemic in Asia and the Pacific. Unfortunately, the current program on HIV is not enough to end such epidemic unless individuals who are most at risk will be identified and located. In this research, comprehensive knowledge of women ages 15 to 49 years on HIV were estimated down to small are, provincial level, using the 2017 National Demographic and Health Survey dataset. Based on the results, Surigao del Sur (Region XIII, Caraga), Benguet (Cordillera Administrative Region), and Ifugao (Cordillera Administrative Region) have the highest percentage of women with comprehensive knowledge on HIV with 61.9, 52.9, and 42.8 percent, respectively. Meanwhile, the lowest percentages were recorded in Tawi-tawi and Sulu in Autonomous Region in Muslim Mindanao with 3.4 and 7.3 percent, respectively. The results further revealed that the percentages were somewhat high in provinces near the metro cities.

Uncovering the Social Security Coverage of Informal Sector Operators and Workers using the Philippine Consumer Finance Survey

By

Ian Miguel D. Landrito, Willa Boots J. Tolo and Christian D. Mina

Abstract

The informal sector[♠] has been one of the major employment generators in the Philippines as it can easily absorb any jobseeker, regardless of educational attainment, skill level, or even age. However, its workforce tends to be vulnerable to labor market risks due to lack of employment benefits including social security. With the extension of PhilHealth coverage to and implementation of Social Security System's (SSS) coverage programs[♦] for informal sector workforce, this paper aims to look at the social security coverage of informal sector operators and workers in the country using the Consumer Finance Survey dataset. The paper also evaluates the social security contributions made by informal sector workforce relative to their earnings and other benefits, their household expenditures, and contributions made by formal sector workers, among others. Using multiple correspondence and logistic regression analyses, the profile of this segment of the working population is also assessed, including their demographic attributes, income classification, asset holdings, access to credit and degree of indebtedness, and risk aversion, among others. A set of policy recommendations is presented based on the results of econometric analyses.

[♠] covers the job order contract workers, seasonal employees, workers hired without an employment contract or fixed-term employment status, and workers hired without employee-employer relationship

[♦] e.g., TrikanSSSya or AlkanSSSya, MuniSSSipyo-Collect Program, Contribution Subsidy

Are Filipino Retirees and Would-Be Retirees Sufficiently Protected?: Evidence from a Household-Based Survey

By

Christian D. Mina and Faith Christian Q. Cacnio

Abstract

The life-cycle hypothesis posits that older people tend to dissave when they reach retirement on the assumption that they worked, earned and saved for their retirement during their working years. Using data from the nationwide household-based Consumer Finance Survey, this study aims to examine whether Filipinos at retirement age (aged 65 and over) or the would-be retirees (aged 56-64) are sufficiently protected in terms of pension and insurance coverage. Profile of households where these groups of individuals belong is also looked at to determine whether these are remittance-receiving or largely composed of working members, among others, which could provide greater financial security for these retirees, using multiple correspondence analysis. Meanwhile, propensity score matching is also employed to determine whether social security coverage has a significant impact on welfare status of households of these retirees. Specific interventions can be crafted based on findings of econometric analyses.

Current State of Transportation Data and Statistics in the Philippines and Opportunities for Improvement Towards Usability

By

Jose Regin F. Regidor

Abstract

Data and statistics on transportation come in various formats. Data collected by various sources are processed and presented in many ways. In certain cases, there are forms or templates that agencies have developed or adopted that they eventually used to generate reports. For example, the Land Transportation Office (LTO) publishes statistics on vehicle registration every year, and the same is submitted to the Philippine Statistics Authority (PSA) for the compilation the agency publishes every year. Meanwhile, the Philippine Ports Authority (PPA) also publishes reports containing the summaries of inbound and outbound passengers and freights at ports across the country. A basic question that needs to be answered is if the data and statistics being published are readily usable for other purposes such as in-depth analysis, modelling, forecasting or back-casting. This paper presents on the current ways transportation data and statistics are produced and published. More importantly, the paper discusses the requirements for in-depth transportation data analysis and relates this to the form and quality of data that can be acquired from various sources. Recommendations are made for more effective data collection, processing and presentation that will enable users to maximize the use of data.

Using Spatial Microsimulation for Integrated Land Use and Transport Modeling in Metro Manila: Improving Transport Statistics for Policy Analysis

By

Noriel Christopher C. Tiglao, DEngg. and Mark Angelo Y. Tacderas

Abstract

The development of integrated land use and transport model is prompted by the need to enhance rational decision-making processes in controlling and directing urban change in the light of sustainability issues. Modelling efforts for cities in developing countries like Metro Manila have been hampered by serious limitations in data availability. If available, existing data sets do not possess the desired spatial and temporal coverage to allow detailed and more sophisticated analyses of complex urban phenomenon. This study presents a spatial microsimulation approach in providing overcoming the data and modeling problems in the development of integrated urban models. The spatial microsimulation approach is that it is capable of building reliable disaggregate data sets at the household or individual level and provide it at an appropriately fine geographic scale for detailed analysis by utilizing disparate data sets and developing a complete microdata set using conditional probabilities, contingency tables and iterative proportional fitting techniques. InformalSim is a static spatial microsimulation model for estimating characteristics of informal households for Metro Manila. This paper presents the development of modules that provide transport-related characteristics such as residential and employment location choice, as well as, car ownership that can provide policy and decision support.

National ICT Ecosystem Framework

By

Engr. Dominador C. Garabiles

Abstract

PROJECT BRIEF RA 10844, creating the Department of Information and Communications Technology (DICT), assigns to the new department the tasks of the primary policy, planning, coordinating, implementing, and administrative entity of the Executive Branch of the government that will plan, develop, and promote the national ICT development agenda.

Today, as the Department presses on to achieve its critical missions, opportunities, benefits and challenges beckon with the emergence of the App Economy that shapes the future of the knowledge society. This mesh of technology development and innovations has expanded the national ICT ecosystem and introduced new requirements on telecommunications infrastructure and new technologies to support the emerging App Economy. With the evolving ecosystem of ICT, technological landscapes and terrains rapidly change, requiring an appropriate wheel, a new mindset, to drive governance and face the industry's challenges.

The Development of a National ICT Ecosystem Framework (NCTIEF), as a complementary planning tool, is seen to consolidate, integrate, and update the ICT ecosystem diaspora nationwide.

The National ICT Ecosystem Framework (NICTEF) will serve as a blueprint for the collection, management, and development of national ICT data in Philippine plans, programs, and projects. Specifically, it will aim to serve as (1) a viewfinder into the Philippine ICT environment and its relation to other ICT environments; (2) a strategic compass directed in responding to ICT-related challenges through its priority thrusts in the identified focus areas; and (3) an implementation and communication plan for the key stakeholder groups involved in supplementing ICT data to an evolving ICT environment.

Civil Registration in the 21st Century: Probing ICT Sustainability

By

Jann Blair P. Salinas

Abstract

Pursuant to Republic Act 7160, Local Civil Registry Offices (LCROs) are created in each city or municipality to carry out the civil registration functions of the Local Government Unit (LGU). Civil registration is the system by which a government records the vital events of its citizens and residents. Over the last few decades, organizations have shown increased interest in deploying information technology (I.T.) in office environments for they are being challenged with the changes brought by technological innovations.

The Philippine Statistics Authority (PSA) started to embrace the changes brought by this innovation through the development of software programs for use by LCROs. This study was mainly undertaken to determine the sustainability of implementing the above-mentioned I.T. resources developed by PSA and the factors affecting its implementation.

Data were gathered using a semi-structured interview questionnaire. Follow-up interviews and observations were conducted to gather additional data to strengthen initial results. Data were analyzed both quantitatively and qualitatively.

Results revealed that BREQS and CRIS are currently being used by 64% of the LCROs in Davao Oriental while PhilCRIS is currently being used by 91% of the LCROs. Additionally, BREQS, CRIS and PhilCRIS are currently being used by LCROs for an average of 8.8, 14.0 and 2.9 years, respectively.

Using these systems, problems are being encountered including bugs/errors of the system and lack of trainings for the in-charge of the system implementation in the LCRO. Thus, regular updating of the system by PSA is necessary to fix these bugs. Trainings are also recommended to be undertaken.

Inequality of Opportunity Among Children: Measuring Regional Human Opportunity Index in Mindanao

By

Nathalie L. Sanchez and Jennifer E. Hinlo

Abstract

Inequality is usually measured in terms of income or consumption. But to cover many other standards of living dimensions, the concept of inequality is now being extended in such as inequality of outcomes in health, education and basic infrastructure. With these contentions, this study aims to address the inequalities across regions in Mindanao through measuring the inequality of opportunity among children in terms of access to basic services that are essential for their growth. These indicators are employed in computing the Human Opportunity Index (HOI). The HOI determines how children's socioeconomic and demographic characteristics affects their access to basic amenities. Results show that there is huge deprivation in terms of provision and allocation of opportunities in access to safe water, improve sanitation, electricity, primary and secondary education among children ages 0-17 across regions in Mindanao.

Are the Filipino Children Developmentally on Track?

By

Wilma A. Guillen, Mechelle M. Viernes, Anna Jean C. Pascasio, Nicole Gabrielle H. Robles and Jonathan I. Antipolo

Abstract

Over the years, children have remained one of the most vulnerable population groups in the Philippines. Consistently from 2006 to 2015, children remained one of the poorest sector in the Philippines. In 2018, PSA released statistics on child deprivation and it showed that children are exposed to multiple risks including malnutrition, poor health, lack of education and poverty. It is undeniable that every child's well-being directly contributes to the country's development, thus, ensuring that they reach their full potential should be one of the country's top priorities.

In 2000, the Philippines together with several countries around the world committed to achieve the Millennium Development Goals (MDG). As the 15-year period set out to achieve the MDGs has come to an end, the Philippines still is facing challenges, particularly on the target on universal education and increasing the number of 1-year old children immunized against measles.

As the Philippines renews its commitment to monitor and achieve the Sustainable Development Goals, the importance of tracking the progress of every child's overall development across all dimensions cannot be overemphasized. The development of children has been one of the basis of all the dimensions of the Sustainable Development Goals (SDGs), given the intergenerational vision of the 2030 Agenda.

Thus, there is a need to develop a multidimensional tool to measure the wellbeing of children particularly the sustainable development of children. This paper aims to measure the Sustainable Child Development Index (SCDI) using the framework developed by Chang et.al in 2018. The SCDI is measured using the dimensions on health, education, safety, economic status and environmental aspects of development. This aims to discuss the SCDI methodology while focusing on incorporating good quality indicators sourced from surveys available in the Philippines. Further, SCDI estimates for 2009, 2012 and 2015 with the estimated variances using the jack knife estimation technique were also generated in this paper.

The Longitudinal Cohort Study on the Filipino Child (LCSFC): Examining the Dynamic Processes of Child Development within the Pubertal Transition

By

Judith Borja, Ph.D., Erniel Barrios, Ph.D., Nanette Mayol, Ph.D., Paulita Duazo, Charl Andrew Bautista, Ph.D. and Vicente Jurlano, Ph.D.

Abstract

The transition from childhood to puberty represents a significant life course segment reflecting early health experiences as well as predicts important social and reproductive health outcomes in adulthood. Within this short pubertal transition period, changes occur in various developmental domains (physical, cognitive, psychosocial). Understanding what drives these changes and identifying the direction that ensure a healthier, more productive passage to adulthood is important.

This paper examines a nationally representative cohort as they experience this pubertal transition from ages 10 to 11-12. We used data from the LCSFC, a 15-year prospective study designed to understand how the Sustainable Development Goals influence various aspects of the lives of a cohort of Filipinos from age 10 through 24.

The LCSFC recruited 4,952 10-year old children in Wave 1 (2016) and retained 96% in Wave 2 (2018). Among the 4,735 children enrolled in both waves, we examine changes in height/bmi-for age, schooling, relationships with family and peers, experiences with violence, engagement in risky behaviors and other developmental attributes. Using longitudinal models we identify individual (I.e., sex and sexual maturity stage), household and community-level characteristics that are associated with children persistently at-risk, persistently on the right track, incident risk cases and who recovered between waves.

Usefulness of Annual Hospital Statistical Reports of the Philippine Department of Health Hospitals

By

Roderick M. Napulan, Erickson A. Feliciano, Rovieanne P. Pascua and Camille Ann C. Ople

Abstract

The Philippine Department of Health (DOH) has mandated that all hospitals managed by the DOH shall submit an annual hospital statistical report every first quarter of the succeeding year. Correspondingly, this paper aims to analyze the submitted 2018 annual hospital statistical reports of the DOH-managed hospitals, which were extracted from the online hospital statistical report system, and to determine the usefulness of the data for policy making and hospital development planning. Based on the key findings of this study, more than half of the 66 DOH-managed Hospitals reported a bed occupancy rate for 2018 exceeds 100 percent. The total inpatient days served reached more than 10 million days for the entire year with about USD 240 Million amount of subsidies were provided for indigent and qualified patients based on required laws. The findings of the study were used to craft the Philippine Hospital Development Plan, national standards and policies, and basis for the passage of laws to increase the capability and bed capacity of government hospitals and to request for funding support from the national government.

How Useful are Administrative Data for Economics Literacy and Communication?

By

Jan Carlo C. Punongbayan

Abstract

This paper focuses on the usefulness of official statistics among economics teachers and communicators in the Philippines. In other countries there is already a burgeoning movement to use empirical data, including official ones, in the teaching and public communication of economics. The Philippines has yet to catch up to this trend. Much of economics teaching today, in K-12 or even in college, are still too theoretical and not as empirical as they should be. Most teachers are unaware and unable to make use of, much less understand, official data, to the detriment of their teaching. The same goes for much of economics communication in mass media, which are only recently catching up and making use of data visualizations, but still in a limited manner. In general, Filipinos underappreciate official data, and we discuss ways by which this can be reversed.

Perspectives on the Use of Routine Health Information for Research, Policy and Practice

By

Carl Abelardo T. Antonio, MD, MPH

Abstract

Routine health information (RHI) refers to data that is collected on a continuing basis by healthcare providers and facilities. Drawing on prior projects, and guided by the PRISM framework, this presentation will offer insights on the challenges and potential of RHI in the area of health services management and policy. Specifically, it will argue that a well-functioning system that collects high-quality data will be able to generate information that can be used for management at different levels (i.e., patient, health unit, and system). Researchers can also analyze RHI to generate inputs for evidence-informed decision making and policy formulation (e.g., one-time or serial assessment of health status and system indicators, policy or program evaluation). The underlying assumption, however, is that there is alignment among the technical, organizational and behavioral determinants that influence RHI system performance and functionality. In the end, use of RHI relies on the presence of a culture of information among stakeholders involved in the different phases of the data life cycle.

Entry, Survival, and Exit of Firms in Global Value Chains: Evidence from a Unique Integrated Transactions and Firm Survey Panel Dataset from the Philippines

By

Adrian Mendoza, Ph.D. and Karl Jandoc, Ph.D.

Abstract

Based on 2017 statistics, micro, small, and medium businesses account for 99.56 percent of the number of establishments and 62.85 percent of total employment in the Philippines. Within manufacturing, 78.15 percent of the firms in 2012 are classified as small and medium enterprises (SMEs). Yet these SMEs have been found to be largely concentrated in traditional sectors (e.g., food, beverages and tobacco; textile and garments; and paper and printing) where linkages to foreign markets are very weak. In fact, 64.77 percent of SMEs in 2012 have no international transactions. This is in sharp contrast to the strong global linkages observed among large manufacturers, where almost three- fourths of the establishments engaged in exporting and/or importing activities during the same period.

This paper investigates the constraints that SMEs face when participating in foreign markets, especially GVCs. We describe the landscape of Philippine SME firms, as well as their entry, exit and survival over time. We also examine SME productivity over two decades, and document factors that describe its movement over time. We use a unique panel import/export transactions dataset merged with firm-level surveys by the Philippine Statistical Authority (PSA).

Trends on Birth Registration in the Philippines (Using Various Censuses of Population and Housing)

By

Minerva Eloisa P. Esquivias and Teodoro M. Orteza

Abstract

The Philippine Statistics Authority (PSA) conducts the Census of Population and Housing (CPH) primarily to take an inventory of the total population and housing units in the country. Starting in the 1995 Census of Population, question on birth registration was included in the census to determine the extent of birth registration in the country. The birth of a child is one of the vital events routinely recorded in a civil registration system that affords children the opportunity to be documented and establish their nationality. The recording of the occurrence of a birth in the city/municipal civil registry office is called birth registration.

The level of birth registration in the Philippines from 1995 to 2015 showed an increasing trend from 89.3 percent in 1995 to 94.8 percent in 2015 based on the results of various population censuses conducted by the PSA. Including the data item on birth registration data as part of the population census can provide basis to estimate the completeness of birth registration as reported in the civil registration and vital statistics system. Birth registration data from the census can show population differentials between those whose births are registered and not registered. Furthermore, birth registration is a significant source of data for planning social services such as schools, housing, and security.

This paper presents trends in birth registration from 1995 to 2015 in the Philippines using the results of various censuses of population. It will also examine demographic and socio-economic differences in birth registration data by describing and comparing the population whose births are registered with those not registered.

A Quick Review of the CRVS Decade in the Philippines, 5 Years After

By

Fred S. Sollesta

Abstract

In November 2014, the first Ministerial Conference on Civil Registration and Vital Statistics (CRVS) in Asia and the Pacific held in Bangkok, Thailand declared the years 2015 to 2024 as the Asian and Pacific CRVS Decade.

The declaration of the CRVS Decade, to which the Philippines is a signatory, is an agreed timeframe for governments to realize their shared vision that by 2024, all people in Asia and the Pacific will benefit from universal and responsive CRVS systems that facilitate the realization of their rights and supporting good governance, health and development.

It was also during that high-level gathering that Governments adopted the Ministerial Declaration to "Get Every One in the Picture" in Asia and the Pacific. It represents high-level expression of political commitment to strengthen CRVS and recognizes its critical value to effective health policy and decision making.

The Philippines has shown strong commitment to strengthening its CRVS system and the country joins the global campaign to "Get Every One in the Picture".

On 20 August 2015, President Benigno Aquino III signed Proclamation No. 1106 Declaring the Years 2015 to 2024 as Civil Registration and Vital Statistics Decade. The proclamation enjoined "all agencies and instrumentalities of the National Government and Local Government Units, including government-owned or controlled corporations, in consultation with the private sector, development partners and the citizenry" to actively support all activities and programs relevant to "Get every Pinoy and Pinay in the picture!"

PSA Memorandum Order 01-s2015 organized an Inter-Agency Committee on CRVS (IAC-CRVS) to serve as a venue for discussion and resolution of issues on CRVS. It asserts that an efficient and effective CRVS supports national and local administrators to deliver services by helping them to identify what services are needed, where and by whom. The first IAC-CRVS was conducted on 10 – 11 September 2015 to discuss global and national policy on the Decade of CRVS. The IAC-CRVS fleshed out the national targets and work plan to meet commitments of the CRVS decade based on the Asia Pacific Regional Action Framework.

This paper will take a look on what has been done and what still needs to be done as we approach the end of the first half of the CRVS Decade.

Valenzuela City: A Smart City - Utilizing Technology in Service and Governance

By

Atty. Marvin Zales

Distributional Analytics for Large Scale Pedagogical Effectiveness: The CVIF Dynamic Learning Program Experience

By

Dr. Christopher Bernido and Dr. Ma. Victoria Bernido

DOST-ASTI Science Infrastructure: Data and Computing as Fuel for the FIRe

By

Joel S. Marciano Jr., Jelina Tanya H. Tetangco, Calvin Artemies G. Hilario, Roel M. dela Cruz and Nestor T. Olfindo

Fourth Industrial Revolution (FIRe): Impact on Education and Skills Development

By

Jose Ramon G. Albert, Ph.D. and Janet S. Cuenca

Abstract

The paper explains about the Fourth Industrial Revolution (FIRe) and its frontier technologies. It discusses FIRe's potential and perceived impacts on the nature of work, and the entire labor market, as well as the future skills required for the Philippines' labor force. It also identifies ways forward to improve the country's preparation for the full impact of FIRe, particularly in human capacity development, aside from strengthening social protection for those who may have difficulty to cope with the emerging disruptions.

Profile of Geriatric Wards and Accessibility of Health Services for Senior Citizens

By

Roderick M. Napulan, Dianne Melody A. De Roxas, Erickson A. Feliciano, Camille C. Ople and Andy Geo A. Reyes

Abstract

Republic Act No. 9994 “Expanded Senior Citizens Act of 2010” Section 5C states that there shall be a “senior citizens’ ward” in every government hospital which shall be used for confinement. A national survey was done to gather data from all government hospitals to map out availability of geriatric wards and to establish an overall profile of the senior citizen patients in the country. Results showed that 43.69% (187 out of 428) has responded to the survey. Of these, 18.17% or 35 hospitals have geriatric ward, wherein an average of 18 beds are allocated for geriatric patients. On the question on how many beds hospitals would like to earmark for geriatric wards, the average response was 22% of their authorized bed capacity. Data from 52 DOH Hospitals revealed that 20.63% of inpatients (352,936 patients) and 20.64% of outpatients (1,079,502 patients) are senior citizens. The findings of the study serve as basis for policy recommendations to improve the accessibility of senior citizens to health services and basis on the standard design development of geriatric ward.

Documentation on Basket Weaving Among Negritos

By

Reymarie M. Caban and Christine Mae Rumingquet

Abstract

This study sought to document the mode of skill acquisition and competency level on basket weaving among the Negritos. The researchers used structured questionnaire in gathering data that were statistically treated using frequency count, percentage and was interpreted using the 5-point Likert scale. Based from the findings, majority of the Negrito weavers are female, married, have attended basic education, aged 19 – 27 years old, their mode of skill acquisition is through their parent by apprenticeship for a period of one year now. The level of weaving competency is excellent using the seven steps as basis for the evaluation. The products they produce are bread basket and square basket that became their source of income. However, until this time the income derived from basket weaving activities is just sufficient for their daily existence. This study also addressed the current problem on poverty alleviation of the province and the country as well. In the light of the findings and the conclusion, the following recommendations are forwarded: (1) Government organizations should help the Negritos in the commercialization of their produced products; (2) Concerned agencies of the government should give continuous trainings for the Negritos for the sustainability and improvements of their weaving activities; and (3) Similar study on the sustainability of their skills acquisition on basket weaving involving different groups of Negritos be conducted.

Making the Invisible Visible! The Significance of an Integrated Data Management System for Persons with Disabilities

By

Abner N. Manlapaz

Abstract

Both the *Convention on Economic Social and Cultural Rights* and the *Convention on the Rights of Persons with Disabilities* recommends to the Philippine government to establish a system for the collection of up-to-date, appropriate, disaggregated data, in line with the proposal of *Washington Group on Disability Statistics*. The *Sendai Framework,* the *Sustainable Development Goals* and the *Philippine Development Plan 2017 to 2022* articulated the importance of disability-disaggregated data for informed decision-making to improve policies and services.

Presently, Center for Disaster Preparedness (CDP) is developing and testing Integrated Data Management System (IDMS) in three areas in Visayas, Mindanao and National Capital Region. IDMS can very well contribute to promoting the inclusion of persons with disabilities in planning, budgeting and other development processes of local government and agencies in DRRM. The intended outcome of this initiative is to increase the capacity of local governments to capture specific information on persons with disabilities in their localities. This initiative of CDP, in collaboration with persons with disabilities, their organizations including the identified local government units in select localities will collect and record information on disability and disaster risk reduction and management through the use of Kobo Collect. Kobo Collect is an open source Android application used in primary data collection of challenging environments. Ultimately, the intended output is the establishment of a comprehensive data management system for persons with disabilities at the municipal and city levels. Such initiative is definitely replicable and scalable at national level.

Assessment of Water Quality in Laguna De Bay and its Tributary Rivers by Examining Physicochemical Parameters through Geostatistical Analysis

By

Venes Bolo Aurellano and Joshua Lou Allen Mamades Gabayan

Abstract

This paper examined different physicochemical parameters obtained from Laguna de Bay and its tributary lakes in order to assess the water quality through mapping the distribution of these parameters in the whole study region. Spatial interpolation methods, specifically ordinary kriging and universal kriging, were carried out to estimate the values of the physicochemical parameters at unsampled locations. Results of the study showed that universal kriging performed better compared to ordinary kriging in interpolating values of most of the parameters. Furthermore, half of the physicochemical parameters considered in the study failed the DENR Water Quality Guidelines. This only means that the life of Laguna de Bay is in danger. The national government as well as the local governments of municipalities around Laguna de Bay must do a collaborative effort in cleaning Laguna de Bay. Rehabilitation of the said lake just like the one done in Boracay can also be done in order to save it from further damage.

2019 Compendium of Environment Statistics: The Bicol Region Experience

By

Danilo V. Luceña

Abstract

This paper chronicles the activities involved in the preparation of the maiden issue of the region's environment statistics, covering the period 2010-2018 and adopting the Framework for the Development of Environment Statistics (FDES 2013). Such compilation supports the monitoring and assessment of Sustainable Development Goals indicators under the environment domain, as well.

The resultant growing environmental advocacies from different sectors of society due to environmental concerns made more apparent has underpinned the importance of environmental statistics as we continuously look for sound direction along ecological conservation and disaster risk mitigation. Specifically, the need for locally-disaggregated statistics is seen as key to better policies and decision-making, especially for the increasingly devolved local-level governance.

The first attempt to organize the team of compilers of environmental statistics in the region was the result of the series of meetings conducted among the Statistical Operations and Coordination Division (SOCD) of the Philippine Statistics Authority Regional Statistical Service Office V (PSA RSSO V) and consultations made with the Environment and Natural Resources Accounts Division of the PSA. The Training/Workshop on the FDES 2013 for the Generation of the 2019 Compendium of Bicol Region Environment Statistics was conducted, mainly to acclimatize the participants and develop their appreciation for the available environment information system. It was followed-up with the conduct of the Consultation/Workshop on the Inventory and Assessment of Available Data on Environment Statistics to further mobilize the involved personnel and strengthen their inclination towards the desired final output, which is the 2019 Compendium of Bicol Region Environment Statistics.

The publication follows the FDES 2013 utilizing the six identified components in organizing environment statistics, namely: 1. Environmental Condition and Quality; 2. Environmental Resources and Their Use; 3. Residuals; 4. Extreme Events and Disasters; 5. Human Settlements and Environmental Health; and 6. Environment Protection, Management, and Engagement. However due to the limitation of statistics, related available data will be included upon determination of its relevance and use in the countryside.

The rigorous tasks of collaboration and the high demands in data harmonization met during the initial stages of compilation were identified as challenges. The publication is slated to be launched on October 30, 2019, as highlight in the Closing Program of the 30th National Statistics Month celebration.

Institutionalizing the Philippine Greenhouse Gas Inventory Management and Reporting System

By

Sandee G. Recabar, Aimee S. Evangelista, Jan Ralph M. Ebora and Alex Kevin Marc M. Alonzo

Abstract

By virtue of Executive Order 174, s. 2014, the Philippine Greenhouse Gas Inventory Management and Reporting System (PGHGIMRS) is institutionalized in relevant government agencies to enable the country to transition towards a climate-resilient pathway for sustainable development.

The Philippines' national GHG inventory identifies and estimates all anthropogenic emissions and removals of greenhouse gases within the country's geopolitical boundaries. As Party to the United Nations Framework Convention on Climate Change (UNFCCC), the Philippines has conveyed its commitment to deliver international reporting requirements which involve dedicated chapters for national GHG inventory.

The institutional mechanism embeds inventory related functions in the identified lead oversight and sectoral agencies. It aims to enable the national government to monitor, track, and manage the Philippines' climate action progress, particularly the country's GHG emissions, in line with the global target of stabilizing anthropogenic GHG concentration in the atmosphere and limiting the increase of global average temperature to a relatively safe level of 2˚C, or further down to 1.5˚C. The national greenhouse gas inventory serves as a decision support tool for both the public and private sectors to formulate climate change mitigation strategies. Most importantly, the PGHGIMRS serves as a driver for the country's transition to a climate-smart, low-carbon development vis-à-vis creating climate resilience among communities.

This paper presents the institutional structure of GHG inventory management and reporting system in the country, its inherent merits and associated drawbacks, previous experiences prior to institutionalization, and the challenges and opportunities for improvements in the implementation of the said system.

The country's overall experience in implementing the PGHGIMRS, including sectoral strategies and the institutionalized approach to developing the Philippines' national GHG inventory are described in this report, including capacity improvements of national experts in preparing inventories.

The Effect of Terrorism to Stock Market in the Philippines

By

Marivic O. Gubalane and Jennifer E. Hinlo

Abstract

Terrorism is a major threat in the fluctuating trends in the financial market. To provide evidence in this uncertain movements, this study seeks to determine the effect of terrorism to stock market in the Philippines from 2005 to 2016. The study utilized terrorism index and stock market index. The study employed the Autoregressive Distributed Lag Model. Results showed that terrorism and stock market relationship in long run does not exist. However, diagnostic results show that the model indicates a relationship in short run. Also, the CUSUM plot shows that the both variables is fit and stable each other over the period. The reaction of terrorism to stock market of the Philippines may be quite temporary, as it only influences evaluations today, but not in the future.

Climate Risk Management through Weather Index-based Insurance for Rainfed Rice Production in Selected Areas in the Philippines

By

Kristine Dale R. Alcaide and Felino P. Lansigan, Ph.D.

Abstract

Changing climate and climate variability are threats to crop production. One effective risk management strategy is crop insurance which transfers or shares risk to the insurance provider. Weather index-based insurance (WIBI) was introduced as an innovation to the traditional crop insurance in the country based on indemnity for crop loss. WIBI involves identifying or developing an index or threshold level based on weather variable(s) such as rainfall and temperature, and determining the risk of crop failure based on sequences of weather data specific to the crop production area. WIBI products may be developed for rainfall deficit, excessive rainfall, and other weather-related hazards. Crop risk profile differs considering location of cropped area, crop variety, and management practices (e.g. planting date, water management, etc.). Thus, in order to effectively manage climate risk, crop risk profiles in different areas were determined, and more or less homogeneous geographic insurance units (GIUs) are delineated. GIUs may be defined based on agroecology, rainfall distribution, or geo-political boundaries. In this study rainfall deficit insurance for rainfed rice production, weather-based indices are determined, crop risk are estimated, and best GIUs to use are compared for three provinces in the Philippines, namely: Isabela, Iloilo, and Bukidnon. Estimates of the risk profiles for each province were compared. Production areas found with similar risk profiles were suggested to be included in the same GIU. The study also shows that reliable estimation of weather-based risks for each defined GIU is a strategy to minimize risk, and consequently, reduce premium for insurance coverage. Moreover, efficiency of WIBI depends on identification of science-based indices and reliability of weather data used in the analysis.

The Crime Information Reporting and Analysis System (CIRAS)

By

PCol. Noel R. Sandoval and Jay D. Guillermo

Abstract

The Crime Information Reporting and Analysis System (CIRAS) or the enhanced e-blotter system is one of the core components of DIDM IT SOLUTIONS. Together with Case Information Database Management System (CIDMS); Case Management and Analysis System (CMAS); e-Subpoena System; e-Rogues Gallery and, e-Warrant System all comprises the features of the PNP Next Generation Investigation Solution.

The enhanced e-Blotter or CIRAS will be interfaced with Geographic Information System (GIS) to evolve into a Qualitative Crime Analysis Management Tool. CIRAS will also be able to incorporate or access data from different e-projects of the PNP. These modifications of the e-Blotter system will enhance the ability of the field commanders to conduct qualitative crime analysis more efficiently and more accurately. The core objective of CIRAS is to serve as a scientific management tool for efficient and effective prescription of police intervention. It provides a logical basis for effective and efficient police intervention. It Overlays other data sets - localities, AORs, critical facilities and structures, troop deployment and movement, etc.; and Build a robust IT infrastructure to support the entire system. It specifically serves as a crime database; Identify crime hot spots along with other trends and patterns; Use of spatial (space) and time series analysis.

It targets to set a standard procedure in reporting crime incident, provide an easy access crime data nationwide, and serve as a working basis for policies and programs of anti-criminality measures. Hence, aims to reach its desired state which is to give the country an in-house web-development on electronic data base system that will accurately facilitate crime documentation.

An Analysis on the Location and Type of Index Crimes in the Philippines

By

Rena Sandy H. Baculinao and Roel F. Ceballos

Abstract

Index crimes are recorded to monitor the trend of crimes in the Philippines. It has been noted in recent reports that crimes rates are decreasing and crime solution efficiency have improved. Although there is an improvement in the crime solution efficiency, crime prevention needs to be strengthened because the occurrence of index crimes are still relatively high. This paper aims to determine the hotspots or locations where a specific type of index crime is most likely to occur using the correspondence analysis and signed Chi-square statistic. Results show that there is a significant relationship between the location and type of index crimes in the Philippines. It is recommended that appropriate programs and policies shall be created to prevent or minimize the occurrence of specific types of index crimes in locations (regions) where are found to be highly associated. CALABARZON, Caraga Region, and ARMM should focus on policies to address the high incidence of murder while Cagayan Valley may look for a prevention of homicide occurrence. Bicol Region's top priority problem is rape while for NCR is robbery. Lastly, theft is a common problem in Central Visayas, Northern Mindanao, Davao Region, and CAR. These regions may implement joint programs on theft prevention.

Alcohol Consumption and Crime Incidence in the Philippines

By

Diana Rose Q. Salas and Jennifer E. Hinlo

Abstract

Most police reports about crime incidence are attributed to alcohol drinking. With this conviction, it is imperative to investigate the determinants of alcohol consumption and examine how alcohol consumption affects crime incidence in the Philippines. The study employed cross-sectional data and panel data in the estimation. There is an upward trend in the consumption of alcohol from 2004-2012. Results in the estimation showed that among the determinants of alcohol consumption, food expenditure, wear expenditure, educational expenditure, income and age, significantly explain the changes in alcohol consumption in the Philippines. On the other hand, alcohol consumption significantly affects the changes in murder and physical injury. Although there is a close relationship between alcohol and crime, the impact of alcohol as a cause of crime should be seen in the context of other causal factors.

Topic Modelling on Consumer Feedback Data

By

Dominic Dayta and Erniel B. Barrios, Ph.D.

Abstract

Companies capturing customers' feedback on products and services typically rely on manual systems to process and analyze such massive amounts of unstructured information. This paper proposes an automated system for feedback capture using novel topic modelling procedures from literature. Verbatim feedback data from customers of a local corporation are classified according to latent topics generated by two major methods: Latent Dirichlet Allocation (LDA), and Probabilistic Latent Semantic Analysis (PLSA). The results summarize comparisons between the two and demonstrate how they can be deployed towards a system scalable for the age of big data.

Identification of Oncodomains Using Bayesian False Discovery Rate

By

Iris Ivy M. Gauran, Junyong Park and DoHwan Park

Abstract

Interest towards multiple testing procedures has been growing rapidly in the advent of the so-called genomic age. Analyses based on protein domain positions are gaining popularity over traditional gene-centric approaches since the latter have limitations in considering the functional context that the position of the mutation provides. The problem that is addressed in this talk is in a single domain, how to identify the highly mutated positions compared to the background where the number of positions in a domain can be as large as several hundreds or thousands. Motivated by the aforementioned domain-level analyses, the primary goal is to propose methods for identifying significant mutation counts while controlling the rate of false rejections. We developed full Bayesian procedures and compared it to the Empirical Bayes procedure. Based from the simulation studies, the full Bayesian methods have the ability to control False Discovery Rate (FDR) when the Empirical Bayes method fails. Simulation results suggest that lesser number of rejections is preferable. The number of identified hotspots in the real data analysis is consistent with the simulation studies.

Mining Insights from Research Publications of Top Universities in the Philippines

By

Joseph Ryan G. Lansangan, Ph.D. and Michael Van B. Supranes

Abstract

This paper aims to uncover structures useful for characterizing research outputs of the “Big Four” universities in the Philippines. Information (such as titles, abstracts, keywords, and names of authors) of published research works of authors from UP, ADMU, DLSU and UST over the period 1995 to 2015 were collected via web scraping of a scientific database. Text analytics on the authors (through word counts) and the keywords or abstracts (through topic modeling using Latent Dirichlet Analysis or LDA) were implemented to get various insights, particularly about each university’s associated (possibly distinct) research areas or topics, dynamics of their research activities, extent of interdisciplinarity of their fields, and how topics (and their correlations or influences) change over time. Analyses suggest the universities may be marked with their respective sets of core research topics, more so highlighted with generally increasing (if not, steady) productivity on these topics over the analysis period. Data also show that the number of unique authors as well as the average number of publications per author have risen. Noticeably, across universities, the median number of collaborators has maintained its level.

An Alternative Method to Estimate Consumer Satisfaction Using Social Media Data: The Case of the Department of Foreign Affairs

By

Angelyn K. Mananghaya and Zita VJ. Albacea, Ph.D.

Abstract

Collecting feedback from customers is instrumental for the improvement of services offered by an agency. In this study, social media data were used to develop a way to estimate consumer satisfaction on a government service, which can be a faster and cheaper alternative to traditional consumer satisfaction surveys but can also generate reliable estimates. Twitter® data related to the Department of Foreign Affair's official account (@DFAPHL) were used for the study. A lexicon-based sentiment analysis, using English and Tagalog dictionaries, was used to determine the sentiment score of all tweets, which were then classified into positive, neutral, and negative. Additional results showed that sentiment score of a tweet has a very weak association with a tweet's number of words, the day and time it was sent, and its language. To determine the proportion of users with a positive satisfaction to the agency, the initial dataset of tweets was filtered such that only the most recent tweet of a user is included. Results showed that around 4 out of every 10 users showed a positive satisfaction based on the sentiment of his tweet. The statistical properties of the estimated proportion were then evaluated using bootstrap resampling, where results showed that the estimate is accurate, precise, and consistent.

On the Gender Pay Gap in the Philippines and the Occupational Placement and Educational Attainment Levels of Men and Women in the Labor Force

By

Gabriel C. Engcong, Daisy Lou L. Polestico, Ph.D., Nicky C. Yungco and John Alfred M. Liwanag

Abstract

An investigation on the current gender pay gap in the Philippine labor market was conducted based on the results of the July 2018 Labor Force Survey through a Blinder-Oaxaca decomposition methodology. Unadjusted, the pay gap against women is at 4.84%, with the geometric means of pay for men and women at ₱361.60 and ₱344.91, respectively. However, with the independent adjustments on the pay gap based on the educational attainment and primary occupations of the respondents, the results show an increase in the pay differential, respectively, to 26.79% and 24.52%. The analyses reveal that decisive advantages of women, in terms of basic pay, with respect to occupational placement and educational attainment levels, mask the existence of a large (currently unattributed) pay gap in the country's labor force. The specific decompositions on the independent and concurrent effects of occupational placement and educational attainment levels on the gender pay gap are further examined in detail.

Relationship Between Unemployment and Job Vacancy in the National Capital Region

By

Cecille C. Mazon, Charlyndon N. Ligaya and Alegria A. Mota

Abstract

The Beveridge Curve shows the relationship between unemployment rate (vertical axis) and job vacancy rate (horizontal axis), the number of unfilled jobs expressed as a proportion of the labor force. The position on the curve can indicate the current state of the economy in the country.

The curve is hyperbolic-shaped and slopes downward, as a higher rate of unemployment normally occurs with a lower rate of vacancies. If it moves outward over time, a given level of vacancies would be associated with higher levels of unemployment, which would imply decreasing efficiency in the labor market. Inefficient labor markets are caused by mismatches between available jobs and the unemployed and an immobile labor force.

A Beveridge Curve can shift due to: (1) frictional unemployment caused by job losses, resignations and job creations; (2) structural unemployment when the skills employers want differ from the available skills in the labor pool; (3) economic uncertainty when an economy's outlook is uncertain and employers are hesitant to hire. In essence, the Beveridge Curve may serve as practical instrument in understanding/addressing changes in the labor market and providing signals to planners, decision makers on the inefficiencies in the labor market. It likewise provides an insight on the effects of measures made/injected to counter inefficiency in the labor market, i.e., expansionary fiscal and monetary policy.

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